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THE IRON AGE *Contents*

NOVEMBER 10, 1938

"I See By the Papers"	35
Steel Construction at the World's Fair	36
Good Lighting a Profitable Industrial Asset	40
Limiting Creep of Furnace Brazing Metal	44
Cross-Bay Crane Handling at New Cimatool Plant	47
Grinders Again Predominate in Current Tool Design	50
On the Assembly Line	56
Statistics on Metal-Working Activity	59
Washington News	60
THE NEWS IN BRIEF	72
Rate of Activity in Capital Goods	81
Weekly Ingot Operating Rate	81
Plant Expansion and Equipment Buying	98
▼ ▼ ▼	
New Industrial Literature	106
Just Between Us Two	117
Products Advertised	118
Index to Advertisers	144

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Heat Symbol A 7

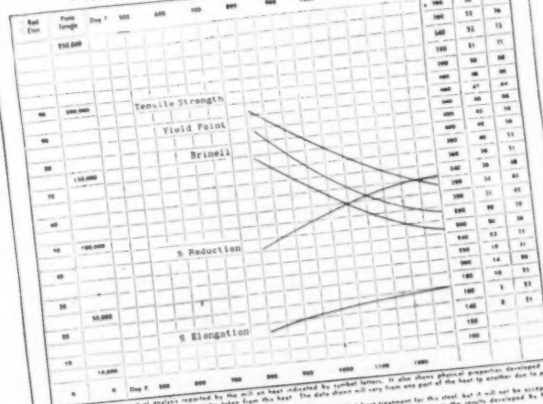
S. A. E. Type 3135-40

HEAT ANALYSIS

C .35 Mn .78 Phos. .012 S .021 Si .23 Ni 1.35 Cr .69 Mo Va
Inherent Grain Size 6-7 Inclusions (Assessive Classification) Oxides 4 Silicates 3

HEAT TREATING CHARACTERISTICS

1" round quenched in oil at 1525 °F. Drawn as shown below.



This chart shows actual values determined by the mill on heat indicated by symbol letters. It also shows physical properties determined by heat treatment tests on one inch round samples taken from this heat. The data shown will vary from one part of the heat to another due to part-to-part variation and normal variation of strength determinations.

This information is given for the guidance of our customers in determining the best heat treatment for this steel, but it will not be accepted as a basis for selection of material nor establishment of claims. Do not neglect to consider effect of mass on the results developed by heat treatment. Further information on this subject is included in the Ryerson General Data Book.

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THE IRON AGE

ESTABLISHED 1855

NOVEMBER 10, 1938

Vol. 142, No. 19

"I See by the Papers"

SOONER or later Mrs. Franklin D. Roosevelt—Eleanor to her host of friends—was bound to get around to the subject of Communism.

No one day is like another to Eleanor Roosevelt and the world is chock-full of interesting things to do and places to visit. To her, being the wife of the President is something more than merely baking biscuits.

Since Communism in the United States has been a subject of more, rather than less, interest since the Dies Committee hearings really got under way, it was natural that Columnist Roosevelt would have something to say on the matter.

What Eleanor told the women of America is that they should give little thought to what they read and hear about the inroads of Communism in this country.

Please pass them by—was, in effect, what Eleanor Roosevelt told her army of anxious readers in regard to the simple folks who are increasingly concerned about Fellow Travelers.

First to ignore this advice was President Roosevelt, who, apparently, suffering with some of the rest of us in an inability to regulate our wives' ideas, called attention to Communism in the United States in a big way.

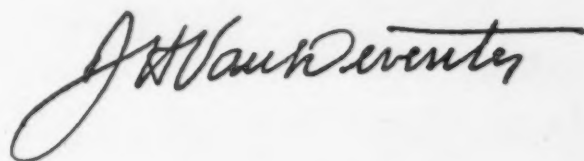
After telling Washington newspapermen that his own extemporaneous comment on the subject might not be polite enough for print, the President issued a caustic criticism of the Dies Committee Investigating Un-American Activities. This committee (five Democrats and two Republicans) has been poking around into Communism and Fascism without any appreciable help from New Deal agencies and with results highly interesting to the country.

The President's attack on the Dies Committee came just after it had heard testimony blaming the Communists for starting the Michigan sitdown strikes and charging Governor Murphy with improper handling of the sitdown.

Joining the President in disregarding Eleanor's advice about giving the critics of Communism the silent treatment is Lee Pressman, chief counsel of John L. Lewis' CIO, which, if memory serves, has not kept the country in ignorance of its part in electing Mr. Roosevelt.

Mr. Pressman's firm has just filed a \$50,000 libel suit on behalf of Lucien Koch, a CIO organizer, against the publishers of THE IRON AGE and James A. Rowan, its news editor, in connection with an article, "Mr. Koch Comes To Town," appearing in THE IRON AGE in April. The article had to do, in part, with a defeat suffered by a CIO union because of its alleged Communistic leadership.

Apparently "Mr. Koch Comes To Town," and the Communistic ghosts which stalk through its pages, like the Dies Committee findings, are not going to get Eleanor's "silent treatment."



Steel Construction at the

THE general type of construction at the Fair consists of steel frame and wooden studding covered with gypsum board. Over this is placed steel mesh of which the most common type is paper back lath and approximately three-fourths of an inch of cement stucco.

The greater part of the steel is bolted in order to facilitate demolition. The Perisphere and Trylon and a number of the larger arches and towers, however, have been riveted and in some cases welding has been used.

With the exception of the important structures the steel is, of course, comparatively light, running in the neighborhood of 500 pounds to the piece. Furthermore, there is much

more variety than in normal commercial work due to the great variety of architectural shapes. This has made the preparation of the working drawings for the steel and its fabrication more difficult than the average work

where there is generally a large amount of similar construction. Rapid progress of the construction work at the Fair has been due to the rapid fabrication and delivery of the steel.

The structural steel for almost all World's Fair buildings consists of simple frameworks of beams, columns, trusses, and angle bracing. Connections have been so designed that field bolting instead of riveting is used almost exclusively. In a few of the relatively high buildings where wind resistance is a major factor and where clearances do not permit angle bracing, rigid portals have been used which necessitated field riveting.

With the exception of the structural steel work for the Perisphere and Trylon, the structural steel for the

ESTIMATED QUANTITIES OF STEEL AND IRON USED ON THE WORLD'S FAIR SITE

Tonnages of Iron and Steel	Estimated Orders Placed to Date	Total Estimated Quantities
Structural Steel—tons..	36,000	42,000
Reinforcing Steel	1,800	2,100
Steel and Cast Iron Pipe	9,500	10,000
Metal Lath & Misc. Iron	6,000	10,000
TOTAL	53,300	64,100



MORE work for the bending machines! Above is shown part of the construction work on the General Motors Building, somewhat typical of the non-conventional structural steel plans at the World's Fair.

New York World's Fair

Aviation Building presented the most interesting problem. This building is designed to suggest the shape of an airplane. The center part of the building corresponds to the fuselage. It is framed with steel arches composed of built-up plate girders with bent flanges. These arches have a clear span of approximately 130 ft. They were erected in three pieces and the joints were field riveted. The front part of the building corresponds to the nose of an airplane. It consists of a half dome approximately 90 ft. high. The covering of the dome is supported by radial structural steel arches which frame to a single arch truss at the juncture of the nose of the building with the fuselage portion.

The structural steel framework for the Long Island Railroad station at the Fair site is also unusual. The roof of this structure is supported by arched trusses. These trusses are spaced approximately 35 ft. apart. To secure effective light inside the station it proved desirable to provide between the main arch trusses clear window panels with no obstructing steel bracing members. This was accomplished by designing triangular three-dimensional trusses which are not inter-braced. These triangular trusses support the wood joists on which the roof is placed.

JOHAN PHILIP HOGAN, Chief Engineer and Director of Construction of the World's Fair, Harvard, class of 1903, was an assistant engineer on original subway construction; for 14 years was engaged in the construction of the Catskill Aqueduct, leaving this in 1920 to engage in private practice. He has been a member of the firm of Parson, Klapp, Brinckerhoff and Douglas since 1926. Has been successively Director of the New York Water Power Investigation; consulting engineer on numerous power and other construction projects for numerous private interests, for the United States Government, the State of New York, and other political sub-divisions through the United States and Canada. Served in the Army, May, 1917—July, 1919; two years in France in grades from Captain, Engineers, to Lieutenant Colonel, General Staff. Has been Director and Vice-President of the American Society of Civil Engineers; First Vice-President of Society of American Military Engineers; General Chairman of Construction League of the United States; member of American Society of Mechanical Engineers and American Institute of Electrical Engineers. Awarded D.S.M. and Order of the Purple Heart (U. S.); citation A.E.F.; Conspicuous Service Cross (New York State); Chevalier Legion d'honneur (French).

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Another interesting use of structural steel is that for the Auditorium portion of the World's Fair Theatre. The roof of this auditorium is supported by arches composed of straight wide flange sections with beveled joints and riveted connections. This design was developed by the Arch

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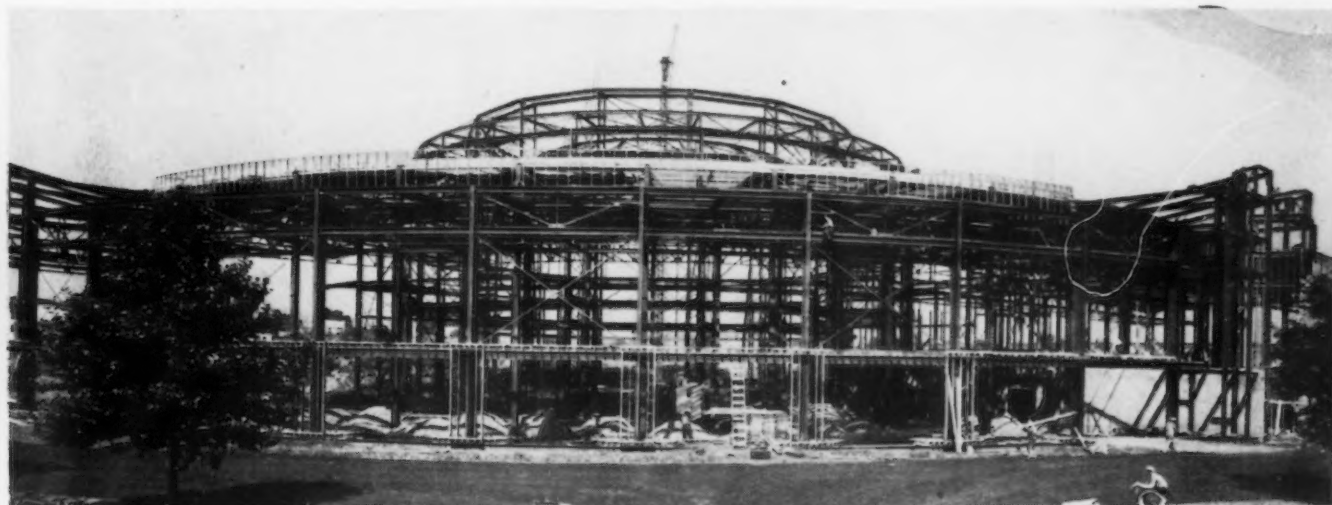
THE Railroad Building begins to take form. Its circular sweep will provide an imposing and attractive home for railroad progress.

Roof Construction Co. who were consultants to the Fair for this problem.

Pylons

Numerous pylons are being erected on the Fair site. In general these pylons have a structural steel framework supporting either a wood or a stucco finish. The structural steel framework for these pylons is very simple, consisting of either angle or T-beam legs with diagonal angle braces.

Two particularly interesting pylons





U. S. Steel takes its own medicine and uses its own product for the framework of its imposing exhibit. Here again we find curves predominating over straight lines.

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canopy supported from the underside by exposed steel arch trusses. The steel was so designed that the arch trusses supporting the canopy appear to be an integral part of the triangular legs that support the framing for the ramp deck.

The Fair has built three permanent bridges for the Park Department. These bridges consist of concrete decks supported by exposed steel girders with curved lower flanges. For temporary use during the Fair each of these permanent bridges has been extended on either side by additional steel framing to support wood decks. The total length of bridges and ramps completed or under construction by the Fair Corporation is about 3,200 ft.

Use of Stainless Steel

The Fair corporation has provided an effective use of stainless steel in the

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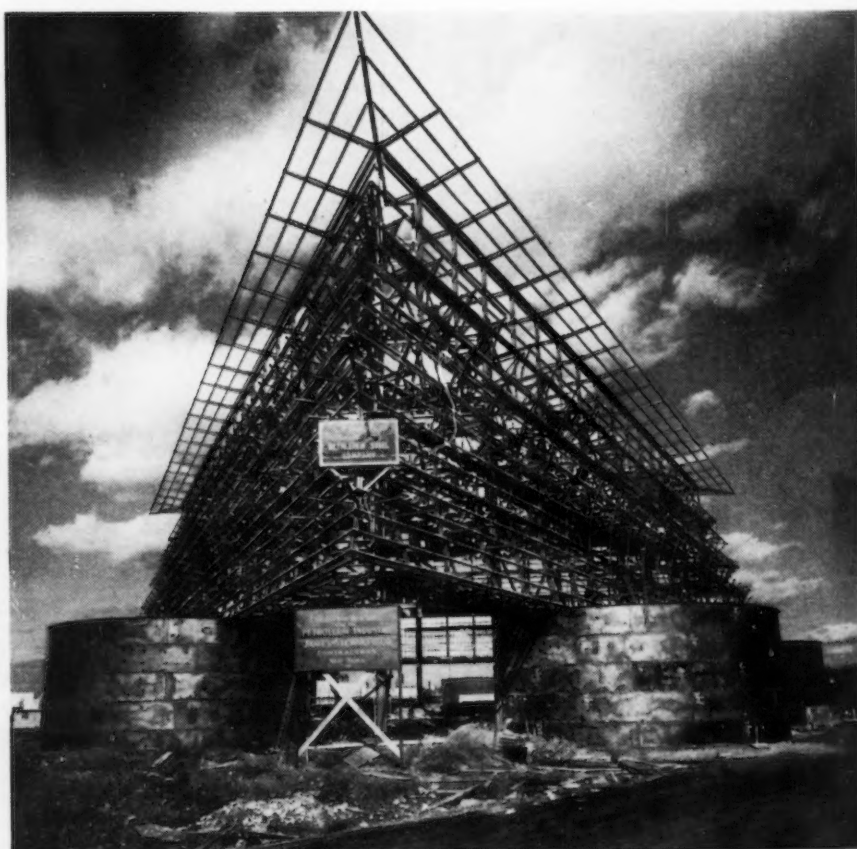
are those for the Textile Building. The pylons, which are approximately 100 ft. high, are built in the shape of hairpins. They are made up of structural steel channels laced together with structural steel angles. All connections are welded. The steel is painted with aluminum and has been left entirely exposed. The principal function of these hairpin towers outside of their architectural effect is to support a decorative treatment of fluorescent tubing.

Ramps and Bridges

The Fair corporation has used in the construction of ramps and bridges approximately 2,500 tons of steel. Among the most interesting of these structures is the ramp leading from the Fair grounds to the Administration Building. This ramp has a wooden

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QUITE appropriately, the Petroleum Building at the Fair is built upon a foundation of oil tanks. Bethlehem Steel Co. furnished this maze of structural shapes.



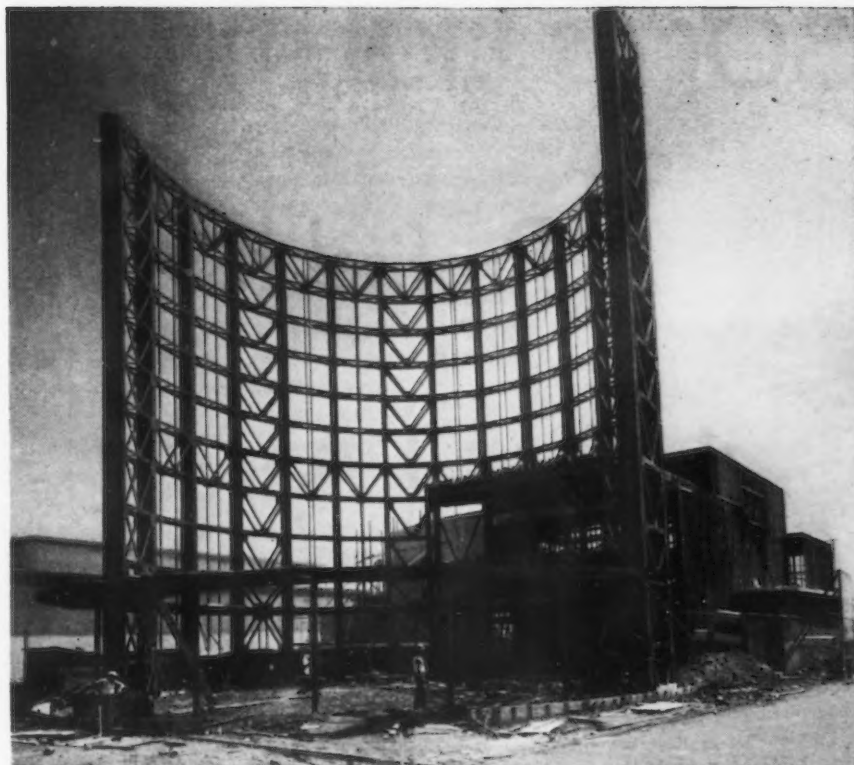
THE main facade of the duPont Building presents an inviting structural steel approach for future Fairgoers.

• • •

Theme development. The soffit of the Helicline in its entire length of approximately 900 ft. is faced with stainless steel.

The most extensive use on the site of stainless steel will be for the exhibit building being erected by the United States Steel Corp. This building will have a stainless steel dome supported by exposed arch trusses.

The corporation has also made extensive use of chain link fabric fence along its boundaries. There are now erected or placed on order approximately 37,000 feet of 9-ft. high chain link fabric fence and approximately 22,000 ft. of 6-ft. fence.



Powdered Coal Furnace Uses Lightweight Firebrick

FOUR new annealing furnaces were built at the plant of the Walworth Co., Greensburg, Pa., as part of a new program which would require eight annealing furnaces to replace the ten old and obsolete units. Since the installation of these four annealing furnaces, the time element has been reduced so much that today these four furnaces have the same output as the previous ten.

Even though located in a natural gas field, W. G. Conner, superintendent of the malleable division of the Walworth Co., decided to construct furnaces to utilize powdered coal as fuel. Furthermore, in spite of the known fact that insulating firebrick is often severely damaged by powdered coal fuel, it was none the less decided to combine the two. The furnaces finally constructed were made up of 9 in. of Armstrong insulating firebrick backed up with 4½ in. of 1,600-deg. insulating firebrick; the roof was made up of 9 in. of 2,600-deg. insulating firebrick backed up with 2½ in. of insulating block; and the bottom was made up 7 in. of insulating brick with 4 in. of paving brick on top. The entire inside ex-

posed surface was given two coats of Air-Set Cement. After five heats, a third coat was applied.

The furnaces were placed into operation during July, 1937. After a year of use, there is evidence of little damage from the well-known abrasive action of powdered coal ash. In one furnace a slight pitted action has occurred on the roof over an area of approximately 6 to 8 sq. ft. However,

this pitting has not been severe and the spot can be easily repaired by an application of a ramming mix. Careful examination of the walls and arch has shown them to be in excellent condition. No cracks have appeared, nor have the bricks spalled.

These new furnaces are producing better annealing, have reduced floor space, shortened the time cycle, and

(CONCLUDED ON PAGE 69)



GENERAL view of four annealing furnaces recently installed at the Walworth Co., Greensburg, Pa., replacing ten annealing furnaces formerly used.

GOOD LIGHTING—

A Profitable

Industrial Asset

By RICHARD W. CHAMBERLAIN

Commercial Engineering Department
Westinghouse Lamp Division
Bloomfield, N. J.

THE three principal conditions to be met for satisfactory illumination in industry are as follows:

1. Sufficient Illumination
2. Absence of Glare
3. Good Distribution of Light

Let us take up and discuss in order each of these conditions.

SUFFICIENT ILLUMINATION

Sufficient illumination should be provided for all visual tasks. This will result in quick, accurate work without eyestrain. The human eye is accustomed to thousands of foot-candles outdoors—even 1000 in the shade and as much as 10,000 on a bright, sunny day. Yet a survey of five cities and several thousand factories—a fair

cross-section—indicates that the general level of illumination is less than three foot-candles! The recommended value for active manufacturing areas is about 20 foot-candles.

Many processes demand levels of illumination of 100 foot-candles or more. It is generally uneconomical to light an entire room to this level, yet when the workman raises his eyes from the work, the change must not be great. Here supplementary lighting plays an important part. By properly lighting the room to at least one-tenth the level of the light required on the work, rest for the eyes is provided.

Daylight is cheap—but not when brought indoors. Few people realize that while the illumination outside may reach 8000 or even 10,000 foot-

candles, it drops to a few hundred inside the windows, and falls to one or two at the center of the building. The modern trend for lighting to correct such conditions is a combination of illuminations. (1) General lighting of sufficient diffusion and level for less severe seeing tasks and (2) special supplementary lighting for severe visual tasks on machines or work benches. The maximum variation between the two should never exceed 10 to 1.

GLARE

But of what value would good illumination be if the light were not properly reflected or directed? Glare may be defined as any bright light source within the field of vision of such a character as to cause discom-

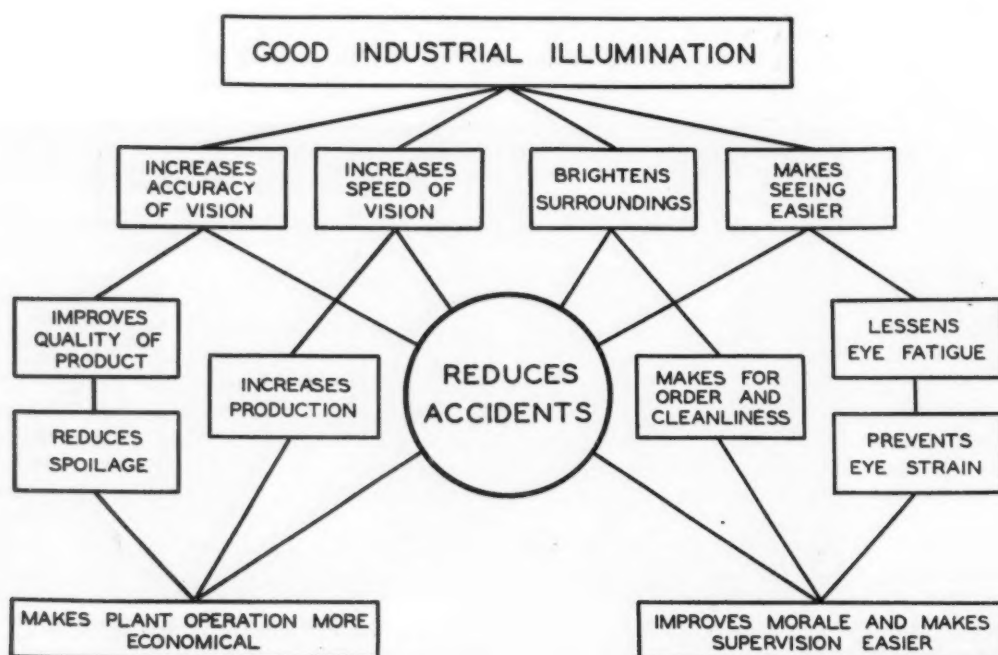


FIG.1 — EFFECTS OF GOOD INDUSTRIAL ILLUMINATION.

fort, annoyance, interference with vision and eye fatigue. This is caused by a bare lamp, poorly designed lighting fixture, reflection from bright objects or polished surfaces.

With a glaring light source in the field of vision, the pupil of the eye closes in order to reduce the amount of light entering the eye. When this occurs, the eye usually does not receive sufficient light for seeing. The pupil then reopens to permit more light to pass, tending to injure the eye and reduce the efficiency of the worker. Lighting units should be so designed and so located that they will not be glaring. Glaring light is responsible for many industrial accidents.

LIGHT DISTRIBUTION

The light should be well distributed over the entire area. Glare, objectionable shadows and extreme contrasts should be avoided.

Light is often wasted and used ineffectively. Improper distribution causes zones of adequate and inadequate light which may mean that the most light may be placed where it is least needed, and the least light where it is most needed. Improper distribution always means contrast of light and dark areas, a condition that places constant strain on the worker's eyes. All local lighting should be supplemented by general illumination. This will improve the appearance of the factory, relieve the eyes and illuminate adjacent areas which otherwise might conceal obstructions and possible accident hazards.

To aid good light distribution, the walls and ceilings should be of a light color. Walls and ceilings are really secondary light sources, because light is reflected from them. The texture of the paint is just as important as the color, however. Shiny surfaces reflect light in one direction only (just like a mirror) while paint with an eggshell finish breaks up the light and turns it back in much the same manner as a stream of water played against a wall breaks up into mist.

COST OF INDIVIDUAL LIGHTING

But can we justify the cost of good lighting in the factory? Investigations show that production is increased from 10 per cent to 35 per cent when good lighting is substituted for poor; and this at a nominal cost of from 2 per cent to 3 per cent of the normal payroll. Increases in production such as are indicated in an accompanying chart are sufficient to merit the installation of good lighting. Yet this is not the only benefit. What about



FIG. 2—LIGHT REFLECTING VALUES OF COLORED SURFACES.

safety? And what about employee morale? Obviously these two must be affected.

Estimations made by the National Safety Council indicate that poor lighting causes approximately 5 per cent of industrial accidents. If we could eliminate this by good lighting, then we could afford to spend about \$75,000,000 on industrial illumination. And illumination engineers estimate that only half this amount would be needed!

Aside from all this, and by no means the least important, is the effect on the morale of the worker. Good lighting

makes for happy workers, reduces labor turnover and expense in "breaking in" new employees.

THE WELL-LIGHTED FACTORY

Now comes the question "If I should relight my factory, what kind of lighting should I use?"

Here again we have a choice. Incandescent, mercury, and combination lamps are the three now in general use. The incandescent lamp should be used with the proper fixtures for best efficiency. RLM fixtures are recommended and when they are used at

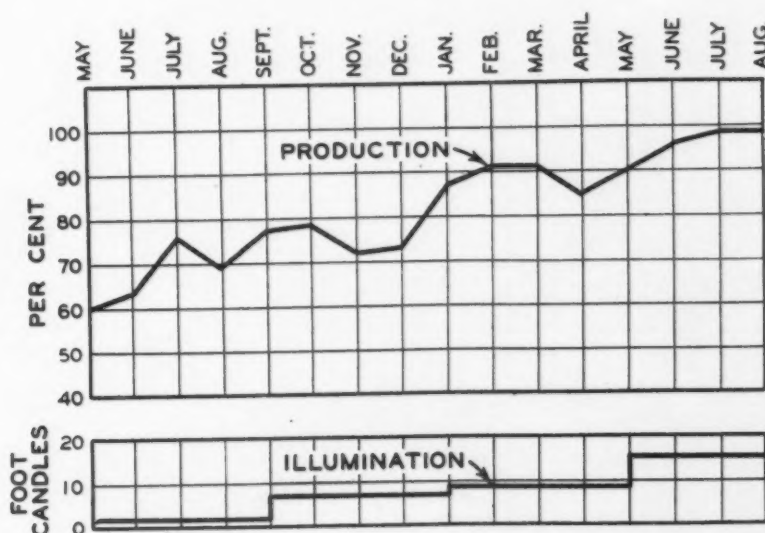


FIG. 3—Relation between illumination and production. Above are given the results of a test made in a Detroit factory which indicate a definite relationship between illumination and production.



FIG. 4—For good lighting, all local illumination should be supplemented by general lighting throughout the room. This eliminates the dangerous condition of contrast so prevalent when local illumination is used alone.

mounting heights of less than 20 ft., the white bowl or inside frosted lamps should be used. Another type of fixture

is the Glassteel diffuser. This fixture is recommended for use where lower brightness of light or softer shadows

are desired. Care must be taken to see that the proper size lamps are used with the different reflectors. A lamp too large may protrude beyond the rim, causing glare and directing less light downward.

Mercury lighting, the modern trend in industrial illumination, is playing a large part in the modernization of factories today. An area illuminated with mercury gives an interesting appearance due to the color emitted. The spectrum of the mercury light indicates that it is made up of three lines—one of yellow, one of yellow-green and the third of violet. And our eyes respond more readily to this section of the visible spectrum.

By using mercury lighting, money may oftentimes be saved. By substituting mercury lamps for incandescent lamps, more light using the same power is provided. A 250 watt mercury lamp is approximately equivalent to a 400 watt Mazda lamp in light output. In Building 61 of the Crocker-Wheeler Electric Mfg. Co., Ampere, N. J., eleven 400 watt high intensity mercury vapor lamps in high bay reflectors average fifteen foot-candles on the work. This is but one example of the many industries that have turned to mercury for light.

Last, but by no means least, is com-



FIG. 5—Crocker-Wheeler Electric Mfg. Co.—Building 61. Eleven 400-watt high intensity mercury vapor lamps are used here. These units are spaced 32 ft. apart in the rows and staggered 25 ft. wide. The mounting height is 25 ft. The average illumination on the work is 15 foot-candles.

FIG. 6—Combination lighting, as shown here, provides good illumination at high efficiency. Each unit contains one 400-watt mercury lamp and three 150-watt Mazda lamps. The units are spaced 18 ft. apart and mounted 15 ft. high. The resulting illumination is approximately 38-foot candles.



bination lighting. In many ways this is the ideal method for industrial use. We know that incandescent lamps produce light in all portions of the spectrum, but they are deficient in violet, blue and green. But these three colors are the very lines in which mercury is particularly strong! Why not combine the two, and have a light comparable to sunlight? This was done, and

the result was pleasing in many ways. It was more efficient than the Mazda lamp, yet it gave white light that readily illuminated a room without dulling or destroying certain colors. Perhaps here is the answer of science to the request for an ideal substitute for daylight where accurate color matching is not required.

But science has not finished yet. En-

gineers still work on new light sources; new gases are used, new glass and new reflectors are being designed daily and efficiencies are improving rapidly. Some day, perhaps, adequate levels of illumination will be the mode, and then our eyes will be given the lighting that conserves energy and prevents eyestrain no matter how difficult the seeing task.

October Steel Output 17% Above September

PRODUCTION of open hearth and bessemer steel ingots in October was 17 per cent higher than the September total, and exceeded three million tons for the first time since October of last year, according to the monthly report of the American Iron and Steel Institute.

Output in October was 3,117,934 gross tons, which compares with 2,657,748 gross tons in September and with 3,392,924 gross tons in October, 1937.

In producing the October tonnage, the industry operated at an average of 52.45 per cent of capacity during the month, the first time in a year that operations exceeded 50 per cent of capacity. By comparison, the industry operated at 46.28 per cent of capacity in September and 58.31 per cent in October a year ago.

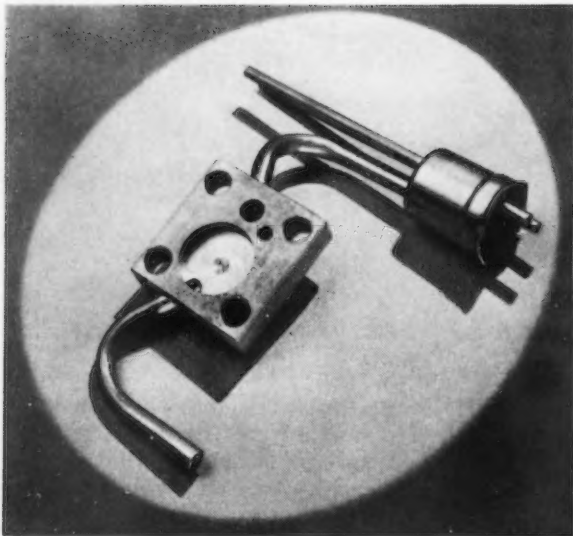
An average of 703,823 gross tons of ingots was produced weekly during October, as against an average output

of 620,969 gross tons per week in September, and 765,897 gross tons per week in October, 1937.

PRODUCTION OF OPEN-HEARTH AND BESSEMER STEEL INGOTS
(Reported by Companies Which in 1936 Made 98.29 Per Cent of the Open-Hearth and 100 Per Cent of the Bessemer Ingot Production)

	Reported Production (Gross Tons)		Calculated Production All Companies		Number of Weeks	Per Cent of Ca- pacity
	Open-Hearth	Bessemer	Monthly	Weekly		
1938						
January	1,604,363	99,991	1,732,764	391,143	4.43	29.15
February	1,550,772	125,493	1,703,726	425,932	4.00	31.74
March	1,822,398	157,737	2,012,406	454,268	4.43	33.85
1st Quarter ..	4,977,533	383,221	5,448,896	423,709	12.86	31.58
April	1,762,315	131,644	1,925,166	448,757	4.29	33.44
May	1,647,049	130,590	1,806,805	407,857	4.43	30.39
June	1,493,148	118,688	1,638,277	381,883	4.29	28.46
2d Quarter ..	4,902,512	380,922	5,370,248	412,778	13.01	30.76
1st 6 Months.	9,880,045	764,143	10,819,144	418,212	25.87	31.17
July	1,821,815	127,982	1,982,058	448,429	4.42	33.42
August	2,309,306	196,789	2,546,988	574,941	4.43	42.85
September	2,407,233	207,887	2,657,748	620,969	4.28	46.28
3d Quarter ..	6,538,354	532,658	7,186,794	547,357	13.13	40.79
9 Months	16,418,399	1,296,801	18,005,938	461,691	39.00	34.41
October	2,844,358	223,208	3,117,934	703,823	4.43	52.45

Limiting Creep of Furnace-Brazing



• • •

MUFFLE-BOX assembly for G-E refrigerator, formerly torch brazed, now furnace brazed. Improvements in quality and reduction in cost has been obtained.

• • •

By H. M. WEBBER
Industrial Department, General Electric
Co., Schenectady, N. Y.

• • •

Sometimes a groove, or a ledge, or a similar barrier is machined in a part purposely to give the brazing metal a place to collect so that it will not run down and accumulate where it is not desired.

It may prove that a limitation of the time in the heat, or a reduction of the amount of brazing metal applied, even though the copper is on the outside of the joint, will suffice to limit the spreading. It is frequently necessary to do some "cutting and trying" before an ideal balance is obtained as to time, temperature, and quantity of brazing metal.

SOMETIMES it is desired to limit the spreading of brazing metal so that it will not reach certain areas of the assemblies. For instance, if any welding is to be done after the subassembly is furnace brazed, copper in the joint to be welded is quite likely to cause difficulty with welding and result in leaks. Accordingly if copper runs to parts of the assemblies which are to be welded it generally has to be removed by grinding, deplating, pickling, or by some other method.

It is sometimes possible, however, to confine the copper to certain areas. Several schemes can be employed but the nature of each particular product determines which, if any, of these schemes are practicable.

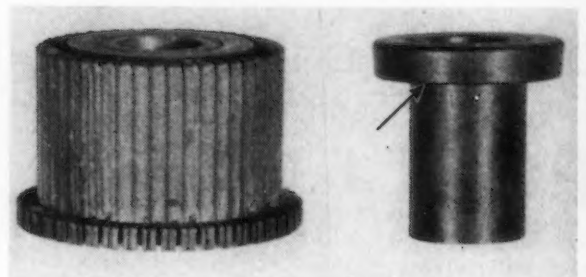
Since, as previously explained, copper spreads very poorly on highly polished steel it follows that using stock of this description would confine the copper to the area immediately surrounding the joint.

Embedding the copper within the joint in grooves or other recesses

• • •

FORMERLY machined from solid stock this Delco-Remy commutator sleeve and ring, is now furnace brazed, with obvious savings in cost.

• • •



sometimes proves effective in confining the molten copper, because its first tendency when it flows to the extremities of the joints is to form fillets. Its surface tension sometimes keeps it from going any further, particularly in the light of the fact that the product can be timed in the furnace, by experience, so that it is taken from the heat shortly after the fillet forms. The presence of the fillet is, of course, indication that the brazing metal has crept through the joint, and in the majority of cases the time for this creepage gives ample strength.

The spreading of copper on steel surfaces is somewhat dependent upon the percentage of hydrogen present in the furnace atmosphere, for a given moisture content, and it has been observed that the tendency for copper to creep increases as the hydrogen content increases. In reverse manner it has been found that the spreading of copper can be limited by reducing the hydrogen content. The hydrogen content of the mixed gases formed by the G-E combustion-type furnace-atmosphere controller with preheater can be adjusted within limits over a

Metals (With Data on Removing Copper After Brazing)

sufficiently wide range to produce the effects mentioned, and advantage is taken of this fact on some production jobs.

Materials can be added to the surfaces of the assemblies to inhibit the spreading of copper. Chromic acid is quite effective in this respect. Copper will seldom pass a barrier of this material which has been applied at strategic locations on the assemblies, assuming the chromic acid is applied to clean, bright surfaces. If it should be applied to oxidized surfaces, the copper will creep beneath the chromic acid through the spongy reduced-iron skin, by capillary attraction.

The chromic acid is generally applied with a small brush, care being

METHODS of confining brazing metal to where it is wanted, and of removing excess amounts of copper where limiting of the creep is not practicable, are dealt with in this fifth of Mr. Webber's articles on the where and how of electric-furnace brazing. The series began in *THE IRON AGE* of Sept. 8, with subsequent articles in the issues of Sept. 15, 22, Oct. 27 and Nov. 3.

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neath the whiting and color the surfaces of the steel. The whiting leaves an inert deposit after brazing, which

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THIS feed-roll support for automatic welding heads was formerly milled from solid stock. By fabricating the assembly from bar stock and furnace brazing it, approximately 40 per cent has been saved in its cost.

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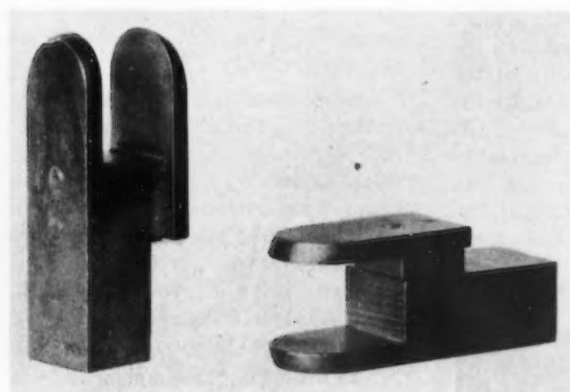
of chromium oxide which formed on the surfaces of the wire.

Another scheme, though seldom used, to inhibit the creep of copper on surfaces is to employ metals which in themselves will not easily be wetted by copper but which will be sufficiently wetted to permit a good brazing job. Such metals could contain "undesirable" elements from the standpoint of furnace brazing, such as chromium, manganese, vanadium, aluminum, or silicon.

Sometimes it is desirable or necessary to remove copper fillets or surface films from assemblies after brazing. On most products this is not necessary, but when there are subsequent operations on the assemblies such as welding, carburizing, porcelain enameling, or plating, it is sometimes best to have the copper removed.

Excess amounts of copper, if collected in localized areas to form lumps on the surfaces, are generally removed by grinding or scraping. The thin copper coating which creeps out over the surfaces of some members at times, is best removed chemically or electrolytically. For instance it can be removed by pickling or by means of a deplating or stripping process.

For stripping copper from the assemblies one manufacturer uses an



taken to keep it well away from the joints to be brazed because if it gets into the joints it will cause trouble. A deposit is left on the work after brazing, where the chromic acid is applied, which must be removed by brushing or some other method if the surfaces affected are to have any subsequent work such as welding, done on them.

Whiting, or chalk mixed with water, has sometimes been used to keep copper from puddling and filling up threads, but the copper will creep be-

can be removed with a stiff brush.

A flash of chromium plating has proved effective in some cases in preventing the flow of copper on certain areas. For example, in refrigerator sub-assemblies which had fine mesh steel screens within them and were copper brazed in production some years ago, the screens were given a flash of chromium plating in order to prevent the copper from filling the openings. The scheme worked very effectively because the copper did not wet and flow on the protective film

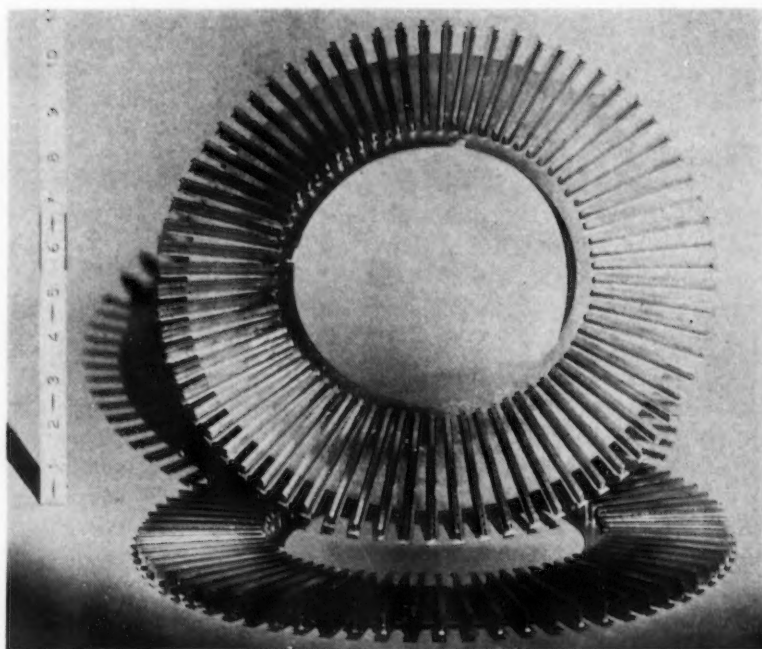


VACUUM-CONTROL switch cover, formerly soft soldered, now copper brazed to obtain greater strength.

electrolytic sodium-cyanide solution having a concentration of 6 to 12 oz. per gal. which is about 7 to 10 per cent sodium cyanide. This stripping solution is operated at temperatures of about 120-150 deg. F. Twenty minutes in this solution is generally ample to remove all excess copper, including the fillets, but in some cases more time is needed. It has been found that 24 hr. or even longer in the solution results in no appreciable effect on the strength of the joints.

Another manufacturer uses, for stripping copper, a solution of 15 gal. of water, 1 gal. sulphuric acid, and 80 lb. chromic acid thoroughly mixed and used at room temperature in a crock. The time required depends upon the thickness of copper to be removed. When parts have appreciable amounts of copper on them they are left in the solution for as long as an hour.

(TO BE CONTINUED)



SPACE blocks for armature cores for high-speed rotating electrical machines are furnace brazed to supplement spot welding.

Copper Ore-Reclaiming Technique Adapted for Iron Ore

THE machine illustrated is a Robins-Messiter Ore Reclaimer assembled in the factory before shipment to a blast furnace in England. Its purpose is to reclaim ore from a storage pile which has been built up in layers of predetermined proportions of different kinds of grades of ore. Such a storage pile is built up by a moving tripper on an overhead belt conveyor discharging layer after layer of the desired ores until a complete

pile or "bed" of triangular cross-section is formed.

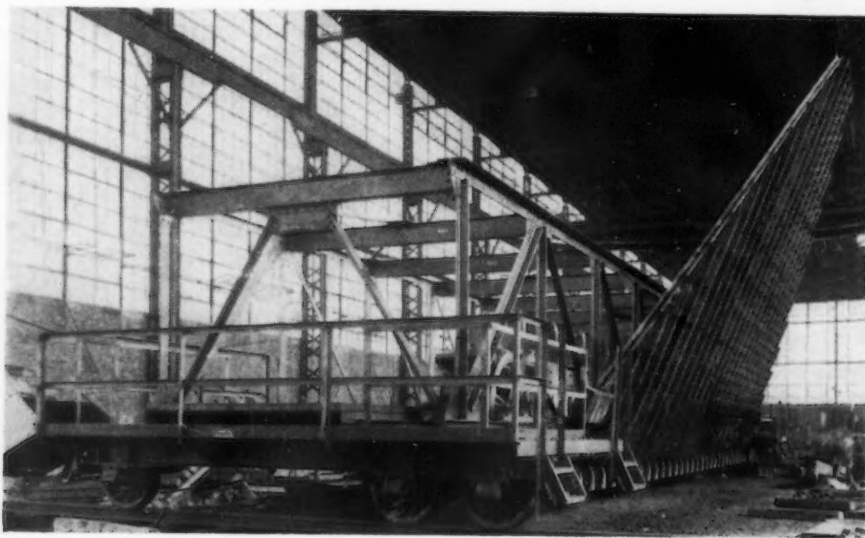
The reclaimer runs on rails located at the toes of the storage bed, and the large triangular harrow shown at the right of the picture rests against the sloping end of the triangular cross-section bed. This harrow carries a large number of spikes projecting into the surface of the ore bed, and has a slow movement back and forth across the pile so that the surface is

scratched or agitated, and the loosened ore from all parts of the surface flows down in a uniform mixture as the reclaimer moves slowly but powerfully forward.

The loosened ore, representing a perfect blend of all the layers in the bed, is conveyed to one side by a scraper conveyor consisting of a series of plows mounted on a heavy chain and supported under the front of the reclaimer frame. At one side of the ore bed a belt conveyor, installed in a trench, carries the reclaimed ore to the furnace skips.

The propelling mechanism for moving the reclaimer into the ore bed is of a slow but variable speed in the control of an operator who has available a higher speed of travel for retreating after a bed is reclaimed. This retreating travel places the reclaimer on a transfer car which moves it to another bed.

Reclaimers of this general type have been in use for many years at copper smelters in the United States, South America, and the Belgian Congo, but the technique has not heretofore found an application in the iron and steel industry. The machine is built by the Robins Conveyor Belt Co. of New York.



Cross-Bay Crane Handling Eliminated at New Cimatool Plant

By WILLIAM F. SHERMAN
Detroit Editor



LOUIS POOCK, vice-president and general manager of the Cimatool Co., Dayton, Ohio.

THE weight of large dies and special machine parts and the necessity for much handling in their processing imposes unusual loads on plant capacity, particularly on crane facilities.

A plant layout has been viewed recently which offsets to an unusual degree the difficulties often experienced in routing and handling the heavy pieces of material used for machines and large dies, and also the numerous small dies often used in conjunction with large ones. Features of building design, placement of machines and provision of ample crane facilities all contribute to more than usual efficiency. The plant is a new one recently occupied by the Cimatool Co., Dayton, Ohio.

Careful planning has made possible the simultaneous processing of dies and the manufacture of a large variety of standard and special machine tools in the same shop. Such diversification, and the ability to process a record volume of large dies in a plant only 100 x 300 ft. are noteworthy.

Layout Planned to Speed Work Flow

From the inception of the building plans for the new plant it was the aim of the Cimatool organization to speed the flow of work and to guard against

interference between small jobs and large ones, or between die work and the production of machine tools. The result is definitely less idle time on machines and a minimum of cost in handling even the largest jobs. These goals were realized because of a departure in plant layout that greatly facilitates the routing of jobs. The high bay, 40-ft. wide by 300-ft. long, is at the front of the building, directly in line with the receiving room which is at the side. In this bay the exceptionally heavy die work and tryouts, and the assembly and tryout of extra-large machines, are carried on.

Costly cross-bay movements of dies-in-process have been eliminated, inter-bay movements are held to a minimum, and intra-bay routings are planned with a relative smoothness that permits large castings to be moved from one machine to the next almost in a straight line down the wide bay. In contrast, conventional layouts generally have the wide bay in the center where heavy work is done, while bench work and light machining are done on opposite sides, necessitating much cross-bay handling.

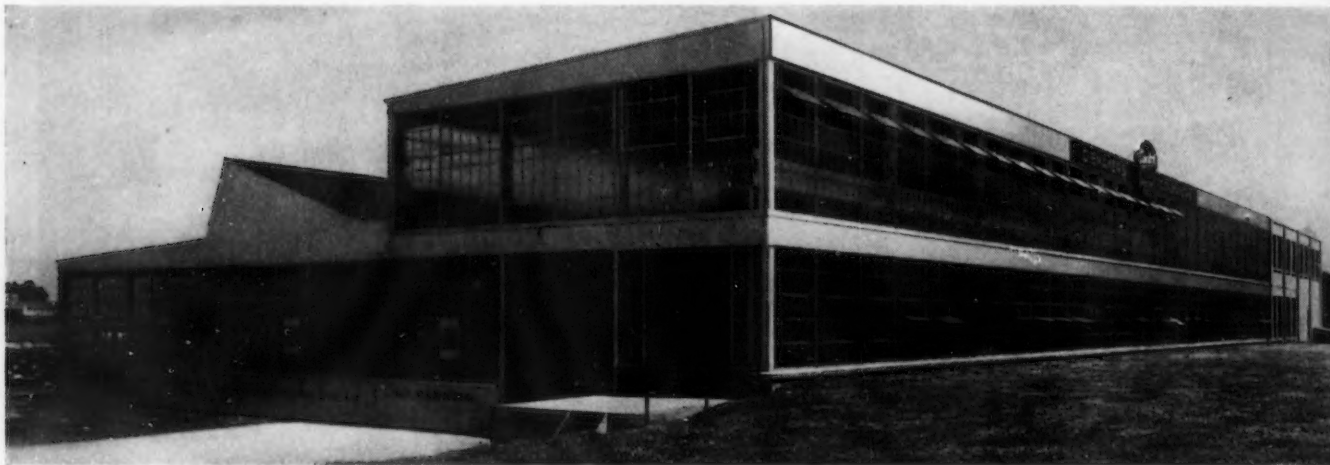
Each of the two 30-ft. bays is departmentalized along lines paralleling the set-up in the major bay. To the middle section is assigned the "barber shop" or roughing room, manufacture

of the larger machine tools, and main assembly work. The rear bay is devoted to space for a model room, a supply room, manufacture of smaller machine tools, and inclosed grinding room, tool crib, superintendent's office, inspection room, welding and heat treating departments.

Large Dies Handled Efficiently

Although Cimatool is engaged in the manufacture of a wide variety of both dies and machine tools, one of the most interesting aspects of the operations in the new plant concerns the efficient manner in which a very large volume of large dies is handled.

Castings weighing up to 20 tons are treated almost as if they were on a production line. Just inside the receiving department is a radial drill used to drill holes to facilitate handling of the castings. Then they can be carried by crane into the "barber shop" for initial working with numerous air grinders and chippers. Outside the roughing room, the castings are ready for the first major operation, which usually is planing. Several planers are available, an openside Liberty with 14-ft. table, 65-in. wide and 45-in. high; and two Grays, one with a 12-ft. table, 60-in. wide and 40-in. high, and another with 10-ft.



EXTERIOR of the new Cimtool plant. The building is 100 x 300 ft. with a 40-ft. bay along the front of the building, a 30-ft. bay under the saw-tooth section of the roof, and a 30-ft. bay at the rear of the building.

table, 26-in. wide and 26-in. high.

A short distance away Kelling is performed, when necessary, on a Keller machine which handles work 4-ft. high and 6-ft. wide. Another interesting piece of equipment is a No. 350 Giddings & Lewis boring machine with hydraulic tracing attachment and a 5-ft. vertical adjustment. It has a 60 x 90-in. table. Other boring mills include two Lucas and a Niles. There are numerous radial drills in-

cluding 6-ft. Fosdicks. At the end of the bay, around the assembly space, there are work benches, each having a 6 x 10-ft. surface plate.

Ample Die Tryout Facilities

Die tryout facilities available here rank among the best in the industry. When dies are completely assembled they are returned by crane to a press line-up near the shipping platform. Here there are five presses including

a Toledo No. 796 $\frac{1}{4}$ D toggle press with 106 in. between uprights and 72 in. maximum shut height, a No. 168 $\frac{1}{2}$ toggle type with 48 in. between uprights and a No. 95F with 103 in. between uprights, equipped with Marquette air-cushions. With this equipment it is possible to try out even the very largest of automotive, tractor, farm implement, stove, refrigerator, diesel dies, etc. Although there is a wide range in capacity and variety of

ALONG this side bay, heavy dies and large machine tool parts move in a straight line from process to process. A 15-ton Northern crane services this bay from the shipping room at the far end to the final assembly stage in the foreground. The plant layout is a departure from the more conventional practice of having the wide bay in the center of the building, necessitating much cross-bay movement by crane or truck.





THREE cranes service the center bay where larger machine tools are manufactured and assembled. The bay at the rear is used for manufacturing and assembly of smaller machine tools and also houses a model room, supply room, enclosed grinding room, tool crib, office, inspection room, welding and heat treating departments. Both bays are well lighted and have wide aisles.

complete die programs processed each year, the company is a specialist on front ends, tops and door dies for automobiles.

A 15-ton Northern crane over the 40-ft. bay is a major piece of overhead equipment. Two 5-ton Northern over the roughing department are supplemented by five high-lift hoists. The center bay area is covered by three Northern cranes of 5-ton capacity.

The machine tool division in the third bay is an integral part of that bay, with entirely separate facilities for manufacturing and assembly, but all work in this division is done in conjunction with the work in other sections of the shop. Floor space actually allotted to various types of work is kept variable to meet seasonal needs of the machine tool and die departments.

Another interesting feature of this

organization is the relatively low rate of labor turnover. Nearly every man in the shops has been in Cimato's service for a number of years. This is the result of an equitable labor policy and a wide diversification of work drawn from many industries. Every possible effort is made to even out die and machine tool construction throughout the year—seasonal layoffs are less severe and fewer in number than is customary in this line of work.

A Recapitulation of Third Quarter Statements of Leading Steel Companies

	Third Quarter 1938	Second Quarter 1938	Third Quarter 1937	Nine Months 1938	Nine Months 1937
U. S. Steel Corp.....	\$5,847,791	\$5,010,426	\$30,617,638	\$12,150,368	\$90,852,853
Bethlehem Steel Co.....	446,866	150,305	9,249,560	1,592,079	27,566,267
Republic Steel Corp.....	2,387,556	2,856,317	3,237,155	8,306,438	9,291,470
Jones & Laughlin Steel Corp.....	1,958,810	1,654,303	1,750,696	4,882,838	6,185,066
Youngstown Sheet & Tube Co.....	727,546	118,033	3,586,495	749,042	10,494,627
National Steel Corp.....	1,813,997	1,005,863	5,277,071	3,908,495	16,935,967
American Rolling Mill Co.....	556,994	525,854	2,646,525	1,280,159	9,289,295
Inland Steel Co.....	1,098,245	1,135,097	4,433,375	3,156,418	12,620,532
Wheeling Steel Corp.....	606,908	624,888	1,230,192	549,015	5,002,033
Otis Steel Co.....	465,596	520,101	948,285	1,283,076	2,691,105
Sharon Steel Corp.....	19,065	192,006	498,569	362,980	1,646,606
Granite City Steel Co.....	18,559	116,640	140,541	253,174	464,036
Continental Steel Corp.....	192,360	156,091	258,890	403,660	793,512
Total for 13 companies.....	\$7,786,423	\$8,935,146	\$63,874,992	\$29,756,438	\$193,833,369
Estimated total for entire industry.....	\$8,920,000	\$10,235,000	\$73,168,000	\$23,700,000	\$222,030,000
Rate of ingot output.....	41%	31%	80%	34%	33%

Bold face type indicates loss.

Grinders Again Predominate in

By FRANK J. OLIVER
Associate Editor, *The Iron Age*

o o o

WHAT is believed to be the longest grinder of its kind in existence has just been completed by Norton Co., Worcester, Mass. It will accommodate work up to 36 in. in diameter and 40 ft. long. Due to the highly accurate method of alining the 60-ft. base ways, it was possible to meet the particular customer's specifications of straightness within 0.0008 in. and roundness within 0.0002 in. on a shaft 4 in. in diameter and 33 ft. long.

An immense headstock movable along the table, with ways 4 ft. apart, is driven by an adjustable-speed 15-hp. motor through multiple V-belts and silent chain. Footstock, of the sliding spindle type, has a 4½-in. diameter live center. For grinding tapers up to 5 deg. included angle, a swivel table is provided with graduated scales and verniers for accurate settings. All adjustments are power driven. Ten steady-rests are pro-

vided, pressure lubricated, with capacity up to 24 in. diameter.

Grinding wheel head with its 25-hp. driving motor and cross feed mechanism, together with the table traverse drive, lubricating and coolant pumps and electrical control apparatus for the whole machine, are all mounted on a traveling platen 18½ ft. long. Table ways are protected from dirt and splash by telescoping steel plate guards extending about 10 ft. beyond the ends of the base. The grinding wheel head is provided with a micrometric hand feed and power rapid cross traverse.

Vertical Surface Grinder

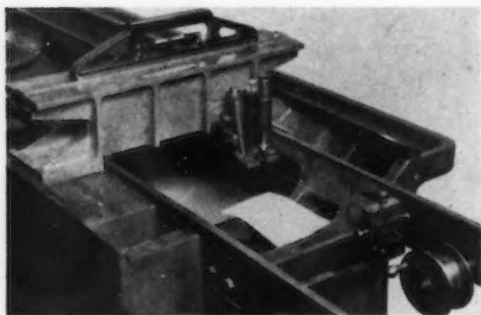
A SMALL size vertical spindle surface grinder with sturdy parts capable of taking heavy cuts without

vibration is found in the new No. 34 model offered by Abrasive Machine Tool Co., East Providence. Standard wheel is 5 in. in diameter, driven at 3050 r.p.m. by a 7½-hp. motor through a flat belt and hardened and lapped spiral bevel gears. The spindle itself is massive and is mounted in precision ball bearings, provided with automatic adjustment for wear and end thrust. The whole assembly forms a heavy wheel slide which has square vertical ways and taper gib for wear adjustment.

Table work surface measures 8 x 24 in. and the table has an automatically controlled movement of 24 in. and a hand operated traverse movement of 8 in. Table feed speeds of 20 and 40 ft. per min. are provided. Vertical adjustment of the spindle, with automatic down feed, is 12 in. in increments that can be varied from 0.000125 to 0.0002 in. at each table reversal. The feed dial can be set to throw out of engagement at a predetermined depth. Hand feed is also provided.

Horizontal Disk Grinder

ONE of the features of the new No. 179, 72-in. disk grinder recently announced by the Gardner Machine Co., Beloit, Wis., is the fact that it is driven by a standard 40-hp. motor through eight V-belts. The disk spindle is mounted in high-grade ball bearings, the lower bearing of which carries a rated thrust load of 38,000 lb.

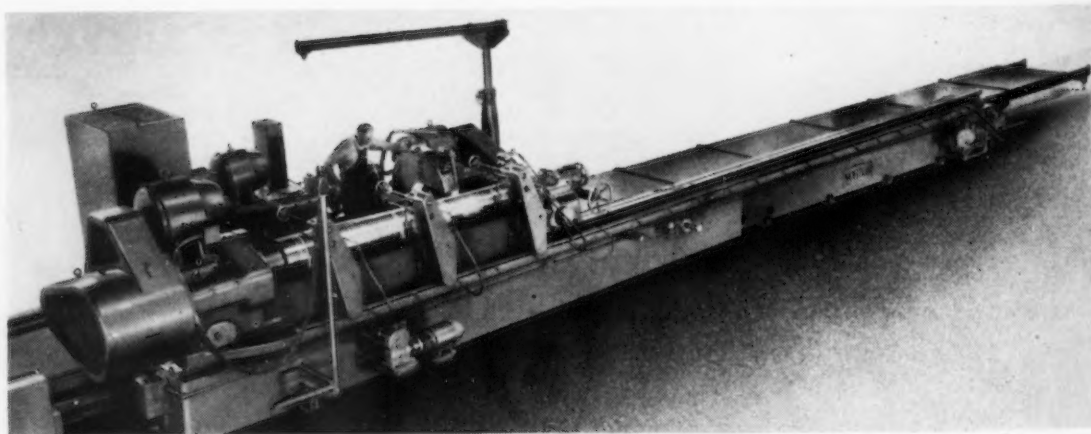


AT LEFT

THE Microliner is an instrument made by the Norton Co. for insuring straightness of the V-ways on its long grinder bases. Music wire is stretched from end to end of the bed and microscopic readings are taken every two or three feet by sliding the instrument bridge along the ways. In the objective of the microscope is a scale graduated in thousandths of an inch. From the chart of readings, correction in bed alignment can be made by means of base adjusting screws.

AT RIGHT

EXCEPTIONAL accuracy has been built into this huge Norton cylindrical grinder, which will accommodate work up to 40 ft. long and 3 ft. in diameter. Total overall length of the machine is 80 ft. and the base and work table are made in two sections, held together by tapered bolts.



Current Machine Tool Designs . . .

at 325 r.p.m. The motor is also a fully enclosed, ball bearing type and is mounted on a hinged bracket to compensate for belt stretch. Another feature is a louver type removable guard ring, which aids materially in removal of the dust and grit of grinding. The louvers are cast at an angle and are flush with the steel wheel or backing plate, extending below the abrasive surface even when it is worn to a minimum.

The abrasive is built in six sections, $1\frac{1}{8}$ in. thick, and is attached to the steel wheel by so-called Wire-Lokt screws, for which cored holes are provided in the face of the abrasive. Disks may also be mounted by means of the familiar pneumatic press method.

Automatic Internal Radius Grinder

MODEL 120, recently introduced by the *Van Norman Machine Tool Co.*, Springfield, Mass., is an oscillating type of radius grinder designed particularly for grinding raceways of ball bearing outer rings up to the 204 size (about $1\frac{3}{8}$ in. diameter).

EXTENSION of size at both ends of the scale are seen in recent announcements of grinding machine manufacturers, and even in the smaller size units more power is being supplied the wheel. Other announcements reviewed cover developments in broaching equipment, step drilling feed units, special way drillers with new features, a gear testing machine, a high production automatic lathe designed for quick changeover, a gun boring lathe, combination toolroom machine, a new line of manufacturing millers, a number of improvements in tapping and threading machines, and a torsion spring winding machine.

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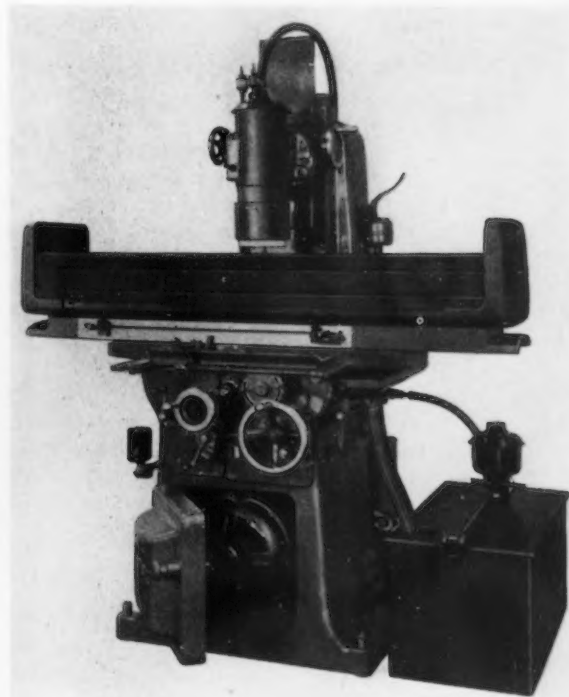
Work spindle has a speed of 2000 r.p.m. and rigidity said to be far in excess of its capacity. Wheel spindle, driven by a 3-hp. motor belted to a ball bearing jackshaft, operates up to 40,000 r.p.m. The drive unit is

mounted directly on the wheel slide, and speed changes are made by pulley changes on the spindle drive unit. The workhead is oscillated by a crank, and all slide movements are by simple mechanical means.

The No. 120 is arranged not only for electric gaging, but also with electric control on the feed drum so that the wheel will be automatically retracted when the predetermined size is reached. In fact, the complete grinding cycle functions automatically by simple standardized electrical controls concealed in back.

Face Mill Grinder

THE oscillating principle of radius grinding is also found in the improved No. 2 Arc face mill grinder, made by *Oliver Instrument Co.*, Adrian, Mich., but unlike the machine described above, all movements are manual and it is the wheelhead that is oscillated (by handwheel) to produce the corner radius of inserted-tooth face milling cutters during the same set-up in which the face and



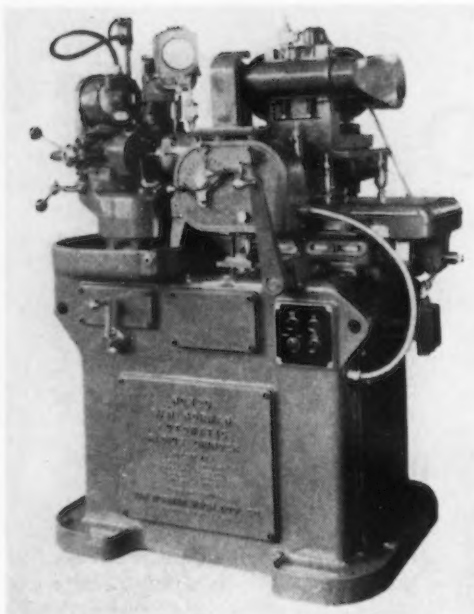
ABOVE

GARDNER No. 179, 72-in. horizontal disk grinder shown with the new swinging bar type dresser, which pivots from a 5-in. diameter stub shaft at the left.

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AT LEFT

THE No. 34 Abrasive vertical surface grinder has a 5-in. cup wheel driven by a $7\frac{1}{4}$ -hp. motor in the base through V-belts and spiral bevel gears, making a very powerful unit for its size.



o o o

AT LEFT

THE No. 120 Van Norman automatic internal radius grinder is an oscillating type machine intended for grinding the grooves in outer raceways of small ball bearings, up to the SAE 204 size.

o o o

periphery are ground. Different clearance angles may be had for face and periphery and any radius of corner up to 2 in. Channeling cutters may be ground in two operations, first as right-hand cutters, then as left-hand. Shell end mills may be ground with a round corner at one setting by using an auxiliary spindle.

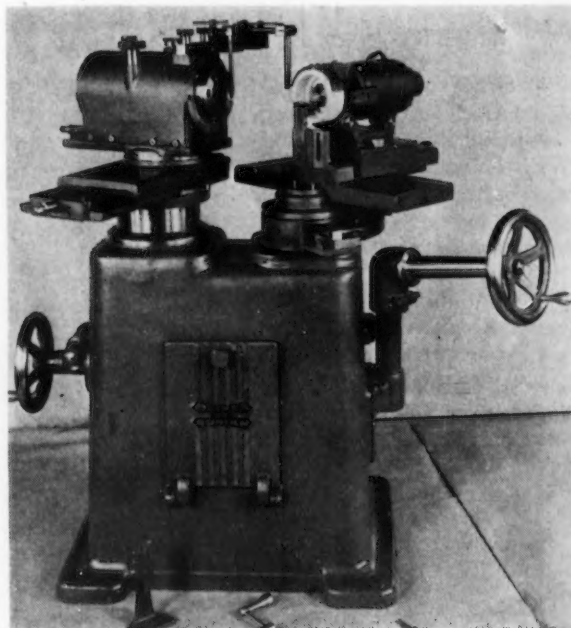
Work is done with a 5 x 2-in. cup wheel, mounted directly on the armature shaft of a 3/4-hp. motor operating at 3450 r.p.m. and having adjustment in all directions. The motor ball bearings are provided with automatic take-up to eliminate end play and compensate for wear. The machine frame is heavier, and important changes have been made in the workhead and slides

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AT RIGHT

THE new Oliver No. 2 Arc face mill grinder is a precision machine designed for the accurate sharpening of inserted-tooth face mills 6 to 26 in. in diameter, either with or without radius between face and periphery.

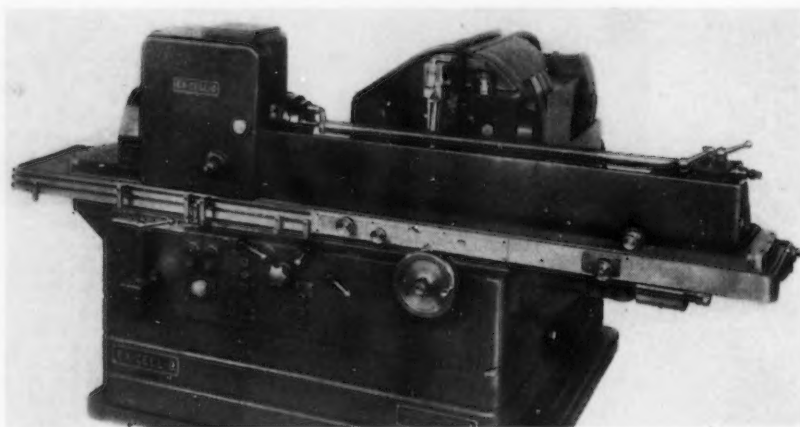
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to make the set-up easier. A new type of rigid lip rest is also used.

Broaching Presses

A COMPLETELY new line of hydraulic open-side utility broaching presses in six standard capacities ranging from 2 to 15 tons is announced by *Colonial Broach Co.*, Detroit. These presses are especially designed for broaching and assembly work on long, bulky pieces, and for this purpose the column is provided with a long faceplate having transverse T-slots and rows of tapped holes in 6-in. steps for adjustment of table height. On the 6 to 15-ton machines, standard clearance between ram and base is 60 in., but this can be increased by adding



SIMILAR design principles to the modified No. 31 thread grinder described on page 33 of the Oct. 6 issue are found in the No. 35 universal thread grinder made by *Ex-Cell-O Corp.*, Detroit, except that the range has been extended further. This new size will grind threads up to 36 in. in length on work up to 48 in. long between centers and 8 in. in diameter with a new wheel. With a special work table extension and tailstock, threads up to 60 in. in length may be ground. The machine will grind in both directions and will handle tapers up to 2 in. per ft. A standard wheel dresser is provided for U. S. Standard, sharp V, Acme and modified buttress threads. Wheel speeds range from 1900 to 2640 r.p.m.

riser blocks in the column. The column itself is of two-piece construction, except on the 2 and 4-ton models. A separate cylinder casting permits changing of machines to different tonnages and strokes, without changing the entire head assembly. Strokes are adjustable by means of stops on the column.

Ordinarily, the hydraulic pumps are direct driven from electric motors mounted horizontally on the rear of the column, but the design is such that vertically mounted motors may be located within the column.

Hydraulic Step Drilling Unit

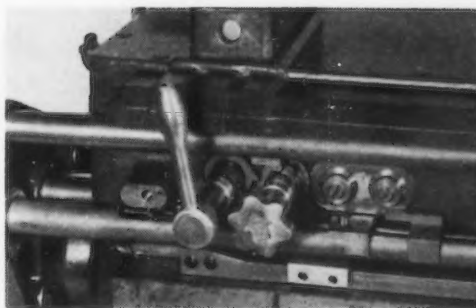
AN automatic hydraulic step drilling unit is now being offered by *Ex-Cell-O Corp.*, Detroit, for use on its 23A or 25A hydraulic power feed

units for multiple or single-spindle drill heads. The step drilling unit consists of a feed bar which moves with the spindle and on which a sliding dog for positioning the action on each step is held under spring tension; a stationary feed bar carrying a fixed dog which trips the hydraulic unit in rapid approach to the feed position after each retraction; and an adjustable hydraulic timer for regulating the depth of cut in each step. Each time the feed bar and head retracts (as determined by the timer) the sliding dog returns with the bar to a new position and acts to throw in the feed after rapid traverse as the previous depth of cut is reached. The cycle continues automatically until the hole is completely drilled.

Special Driller and Tapper

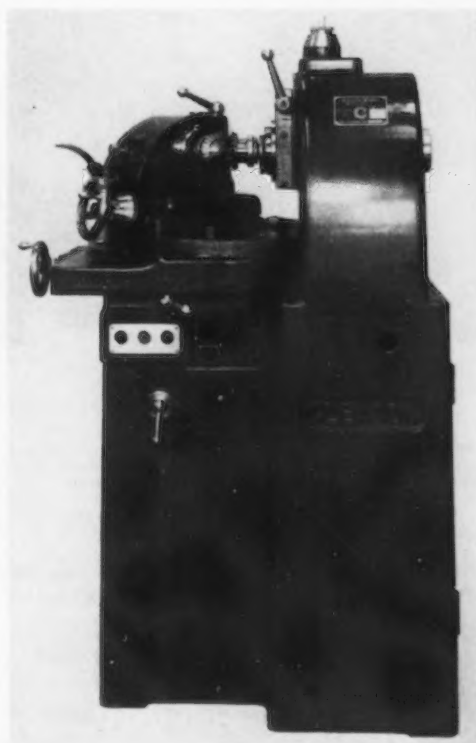
ALTHOUGH the No. 3½-16 three-way unit type way driller and taper illustrated was made by *Baker Brothers, Inc.*, Toledo, for the specific purpose of drilling and tapping two holes at 17 in. centers in steering knuckle support arms, there are a number of design principles involved applicable to a general line of way drillers. The standard unit heads have saddles mounted on four 3½-in. diameter steel bars, 24 in. in length between the bracket supports which are bolted to the steel unit bed. With the materials specified for bars and bushings, the wear factor is said to be 1/85th of case hardened steel on similar material on flat ways. The unit at the left, for drilling, and at the rear, for reaming and chamfering, have hydraulic feeds, supplied by an Oilgear variable delivery pump, but the third unit feed has hydraulic fast traverse and lead screw feed for the actual tapping.

The work fixture is a four-station turret, measuring about 32 in. across the fixture mounting surfaces. Each



CLOSEUP of the new Ex-Cell-O hydraulic power feed unit with cover removed to show feed bars, dogs and timing control for step drilling. Capacity is sufficient to feed a 1-in. drill or a number of smaller drills.

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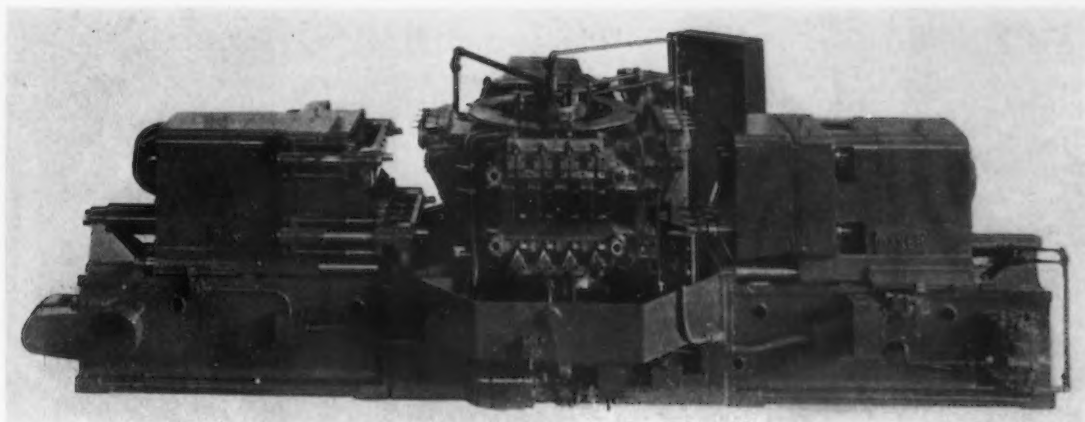


TYPICAL of the new line of Colonial utility broaching presses is this 10-ton size with 36-in. stroke. The hydraulic pump motor may be seen at the rear.

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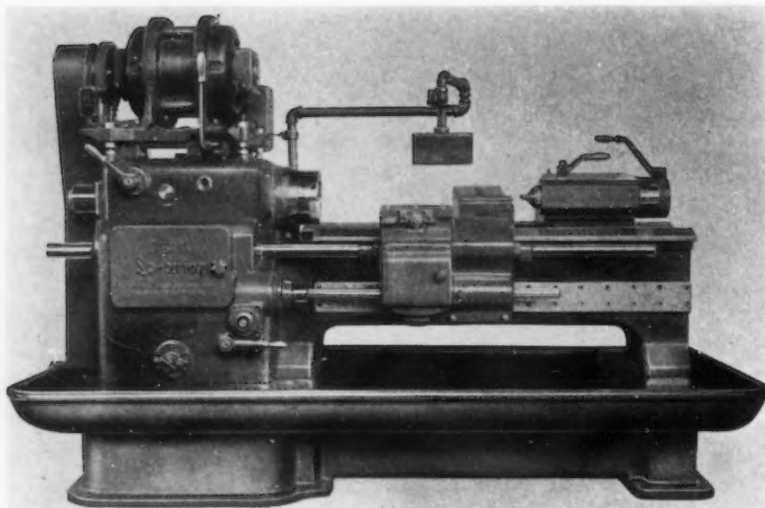
AT LEFT

GLEASON No. 4 angular gear testing machine for bevel and hypoid gears up to 6¾ in. in diameter has both spindles mounted on preloaded anti-friction bearings.



THE unit heads on this Baker No. 3½-16 three-way driller, reamer and taper slide on short lengths of round bars. The central turret holds four pieces at each station and is indexed automatically. Hydraulic rapid advance and lead screw feed is used for the tapping head.

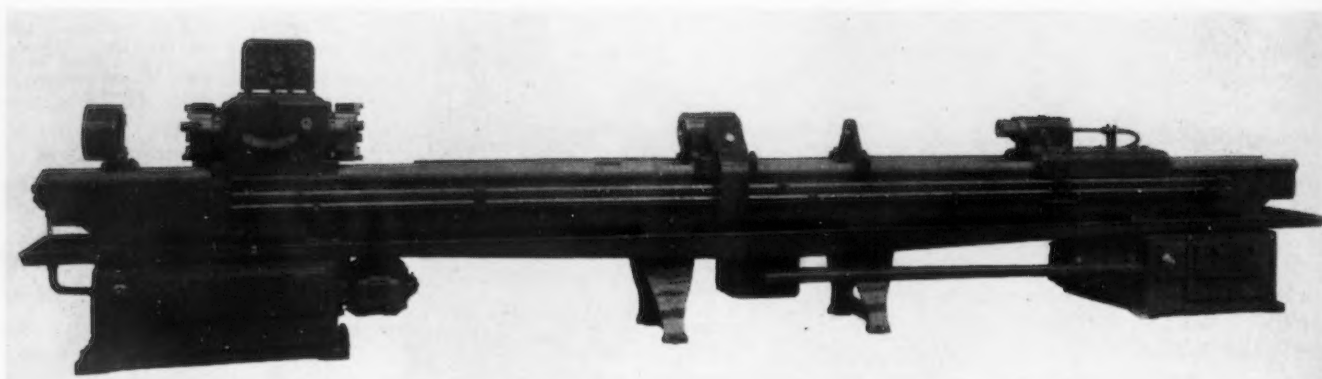
o o o



MODEL LR Lo-Swing is a fully automatic, cam-operated lathe with capacity up to 5½ in. swing and 46 in. between centers in the longest bed length. It is particularly designed for use with carbide tools.

ated lathe of 5½-in. swing and embodying a simplified changeover mechanism with which the length of carriage stroke may be quickly varied. The construction is 100 per cent mechanical, without any clutches in the feed train, providing both flexibility and consistent accuracy on volume production or on short or medium runs. All rotating shafts are anti-friction bearing equipped and adequate lubrication is assured. Carriage ways are hardened steel.

Model LR Lo-Swing can be equipped with either a direct V-belt drive for high speed, fine finishing cuts or a geared drive for roughing cuts. The machine has been especially designed for use with carbide tools. Main carriage support is directly in line with tool pressure, and all tools



WHILE primarily designed for gun boring and reaming operations on stock up to 96 in. long, for industrial use this LeBlond deep hole boring lathe can be adjusted to take stock any length, 5¼ in. outside diameter, and boring up to 2½ in. diameter.

fixture is arranged for chucking four parts, and clamping is accomplished hydraulically, as is the movement of two locating dowel pins for each part. Each fixture has four pilot bar bushings for securing accurate location of the turret from the three heads, and indexing is done automatically, with approximate location first made by a vertical index plunger. Upper and lower bushing plates lend tool support for the drilling and reaming tools.

Angular Gear Testing Machine

ARIGID testing machine for checking the running qualities of bevel and hypoid gears up to 6¾ in. diameter is a new development of the Gleason Works, Rochester, N. Y. This machine will accommodate all shaft angles from 0 to 180 deg. and pinion shaft offsets up to 1¼ in. either above or below center. The pinion drive head can be operated in either direction at 1750 and 3500 r.p.m. Load is

applied to the gear head by a hand brake, proving gears for size, spacing, noise, runout and tooth contact.

Both spindles are mounted on matched and preloaded anti-friction bearings, and the taper holes are ground with the spindles mounted in their own bearings to insure absolute concentricity.

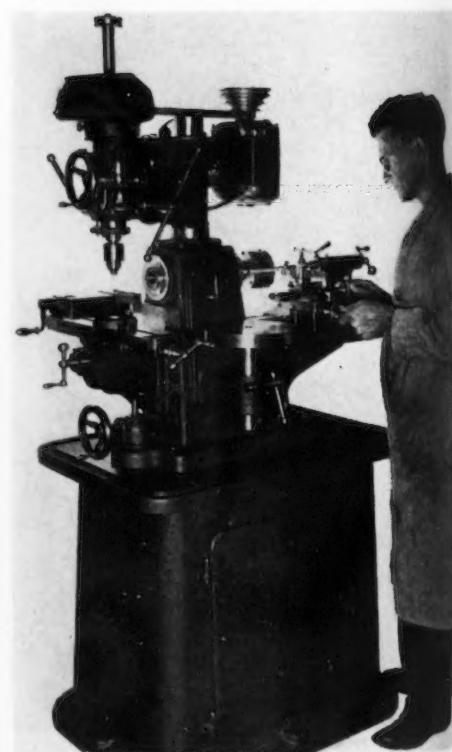
Automatic Lathe

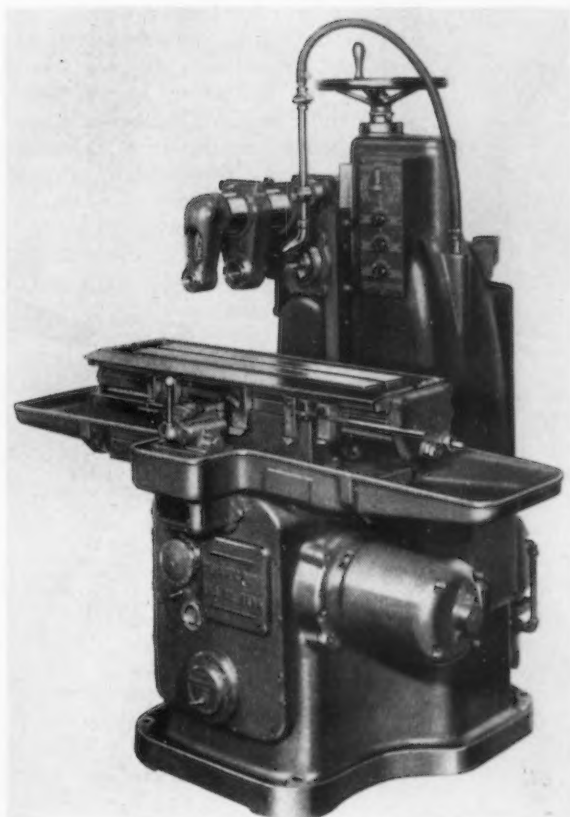
THE new model LR Lo-Swing lathe, just announced by the Seneca Falls Machine Co., Seneca Falls, N. Y., is a fully automatic, cam-oper-

• • •

AT RIGHT

THE Gilman Four-in-One toolroom machine combines a precision lathe, horizontal and vertical millers and a drill press, using two separate motor drives for the two primary spindles.





AT LEFT
FRONT view of the new No. 0 Sundstrand Rigidmil with hydraulic feed, showing the flange mounted motor for driving the hydraulic pump unit, right, and table feed dial to the left.

BELOW
SERIES A Proconier universal tapping machine for small, sensitive high speed tapping has compensating springs on the foot operating mechanism to provide a uniform pressure on the tap. This model has an automatic tap lubricating device attached to the treadle.



AT RIGHT

THE Oster Rapiduction Junior bolt threading machine is made in two sizes, one up to 1 1/4 in., the other up to 1 1/2 in. capacity. After the thread has been cut and the head opened, it is automatically reset to size by returning the vise carriage to its original position.

toolroom unit being introduced by the Gilman Engineering Works, 214 N. First Street, Janesville, Wis. The lathe has a 24-in. bed and swings work 9 in. in diameter by 12 in. between centers. The compound rest may be clamped at any position on the bed. The other end of the lathe spindle forms the horizontal miller nose. Both are powered by a 1-hp. reversible motor and spindle speeds range from 80 to 2500 r.p.m. The adjustable milling knee supports a 4 x 18-in. table.

The vertical mill operates over the same table and is driven by V-belt from a separate 1/2-hp. motor. Quill travel is 4 in. For drill press work, the vertical spindle head is swung 90 deg. over a table 8 1/2 in. in diameter. This spindle has speeds from 390 to 2200 r.p.m. Timken bearings are used throughout.

Small Millers

A NEW size Rigidmil, the No. 0 is being offered by the Sundstrand Machine Tool Co., Rockford, Ill., in both hydraulic feed and hand feed models. In the former type, which can be had with tables either 8 x 34 in. or 8 x 46 in., easily adjusted dogs control a variety of automatic cycles to meet any practical requirement of conventional or climb milling. Selection of feed in any amount from 1/2 to 38 in. per min. is made by a graduated dial at the front. The Sundstrand hydraulic units are self contained within the base. Switches controlling all electric motors, spindle



move in towards the work in a straight line. A feed throw-out control permits the operator to stop the feed while the spindle is still revolving, another advantage with carbide tools.

Deep Hole Boring Lathe

THE new deep hole drilling, boring and reaming lathe, announced by the R. K. LeBlond Machine Tool Co., Cincinnati, was designed not only to do gun boring work but also to qualify for many industrial applications, taking stock of any length up to 5 1/4 in. outside diameter and boring a hole up to 2 1/2 in. diameter. The headstock mechanism provides three changes of speed through sliding gears, and by means of change gears and a 20-point rheostat, the hollow spindle has a range of speeds from 20 to 515 r.p.m. Carriage feed is hydraulically actuated, ranging from 0.0006 in. at 500 r.p.m. to 0.380 in. per rev. at 20 r.p.m. A safety pin is provided to protect against overloads.

A self-contained motor driven coolant system supplies the cutting tool with 15 gal. of filtered fluid per min. at 500 lb. maximum pressure.

Combination Toolroom Machine

A PRECISION lathe, horizontal mill, vertical mill and drill press are combined on a single base in a

direction and safety stop are mounted in a single panel on the column.

Basic design of the hand feed model is similar, except that the table is smaller, 8 x 30 in. The maximum travel of 14 in. can be obtained in a continuous movement by handwheel or in adjustable units of 4 in. by a powerful hand lever. Hand feed to the spindle head is lever operated in adjustable units of 2 in. In other respects, such as spindle construction, speed range from 25 to 1200 r.p.m. or 50 to 2400 r.p.m. through pick-off gears, overarm support and coolant supply, this model is the same as the hydraulic feed machine. In both models primary drive from the 1-hp., 3600-r.p.m. motor to the spindle head is by V-belts. There is also a No. 1 size announced, of somewhat larger capacity, but with the characteristic Sundstrand rectangular overarm support and outboard braces and made only in a hydraulic model.

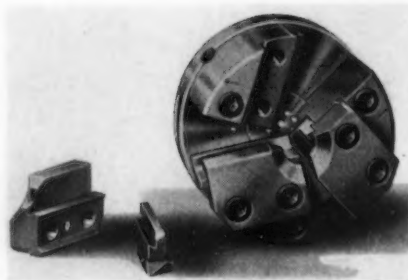
Universal Tapping Machine

A SMALLER size universal tapping machine capable of handling tap sizes from No. 2 to 5/16 in. in steel or 1/2 in. in brass, through the use of two Proconier high speed tapping heads, is announced by the *Proconier Safety Chuck Co.*, 16A South Clinton Street, Chicago. The enclosed V-belt drive provides four speeds from 390 to 2050 r.p.m. In the foot-operated feed, there are compensating helical springs that provide uniform pressure on the tap, regardless of the amount of pressure applied to the pedal. This device also enables the tap to establish its own lead.

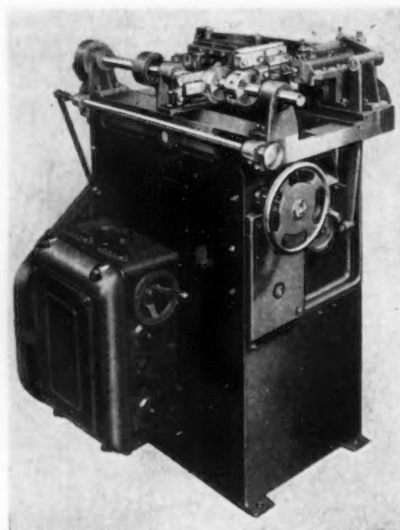
The ball bearing tapping head clamps directly around the quill and the short rigid mounting assures accurately tapped holes. Driving power is supplied from the machine spindle through a dog-type universal joint connecting with the drive shell of the tapping head, which is a double cone friction type.

Bolt Threading Machine

TWO new Junior sizes of Rapiduction bolt threading machines have been added to the line of the *Oster Mfg. Co.*, Cleveland; No. 541 machine has a capacity up to 1 1/4 in., and No. 542 up to 1 1/2 in. When stripped of die head and vise carriage, the machines can be adapted to chamfering, drilling, reaming, boring and tapping. Drive is from a 2-hp. motor through V-belts and worm and wheel, giving (by interchangeable sheaves) eight spindle speeds from 27 to 386 r.p.m.



THE Landis Machine Co., Inc., Waynesboro, Pa., has recently designed this special forming head for use on its automatic bolt and screw forming and threading machines. In addition to facing and beveling or pointing the end of the work, this three-bladed head reduces the body diameter and faces the shoulder at the end of the cut. Cutters are held by a clamping action similar to that employed for Landis tangential chasers, and the correct cutting position of each tool is adjusted separately with the aid of a setting gage.



THE new line of Torrington torsion spring winding machines is made in three sizes covering wire sizes from 0.008 to 0.135 in. A cam and segment drive provides a definite time interval for each step in the forming cycle.

The vise is an open type operated by a handwheel and the vise carriage is mounted on two round steel studs parallel to the bed of the machine. Travel is 10 in. The die head is of the rotary type, automatic, quick opening and using high speed steel threading chasers of the radius hobbled, segmental type. Bed and base of the machine are of fabricated steel.

Spring Winding Machine

THE Torrington Mfg. Co., Torrington, Conn., has recently developed a torsion spring winding machine, made in three sizes and designed to produce small springs with complicated forms on either or both ends. Spindle is mounted horizontally to facilitate adjustment of forming tools. A feature is the provision of a definite

period of time for feeding first end of wire by the winding mandrel forming first end, winding spring, cutting, forming last end of spring, recoiling spring and ejecting. This cycle is accomplished by means of a cam and segment drive. Either slide or roll feed is optional. Several types of forming slides can be supplied for use on either or both ends of the winding mandrel, and various types of bending mechanisms can be furnished for making circular forms in the ends of springs. Three types of drive are available: flat belt, motor drive with spline gear transmission; and variable-speed drive.

Blast Furnaces 60% Fewer Than in 1889

THE steel industry today has 60 per cent fewer blast furnaces than 50 years ago, but technical progress in blast furnace construction and operation has increased the total blast furnace capacity of the country by about 300 per cent during the half-century period.

Over the same period, the number of employees in the industry has nearly tripled despite the sharp reduction in the number of blast furnaces, according to the American Iron and Steel Institute.

In 1889, a total of 575 blast furnaces were available for the production of pig iron and ferroalloys in the United States. Total capacity of the furnaces was 13,168,000 tons of pig iron and ferroalloys per year.

Although by 1938 the number of furnaces had decreased to 236, their total capacity was about 51,221,000 tons a year.

Blast furnaces are located in 17 states and in 56 counties. About 87 per cent of the blast furnaces standing in 1938 are located in six states, Alabama, Illinois, Indiana, New York, Ohio and Pennsylvania.

Pennsylvania with 78 blast furnaces has more than any other state, followed by Ohio with 48, Illinois with 23, Alabama with 20, Indiana with 19, and New York with 17. Michigan has 8, Maryland 6, and Colorado, Tennessee and West Virginia have 3 each. Both Kentucky and Minnesota contain two blast furnaces, while Massachusetts, Missouri, Utah and Virginia each have one furnace.

Imports (In Gross Tons)	September		Nine Months Ended September	
	1938	1937	1938	1937
Pig iron	6,922	7,911	29,184	84,038
Sponge iron	31	230	362	1,510
Ferromanganese ¹	3,887	1,898	11,940	22,560
Spiegeleisen	1,069	3,000	7,051	16,894
Ferrochrome ²	1	....	100	240
Ferrosilicon ³	180	504	549	2,384
Other ferroalloys ⁴ .....	....	....	1	52
Scrap	4,218	8,566	7,659	70,257
Pig iron, ferroalloys and scrap	16,308	22,109	56,846	197,935
Steel ingots, blooms, etc.	158	....	165	124
Billets, whether solid or hollow	19	101	470	1,486
Wire rods	564	1,658	3,582	12,497
Semi-finished steel	741	1,759	4,217	14,107
Concrete reinforcement bars	105	149	1,015	3,752
Hollow steel bars	72	105	604	1,864
Merchant steel bars	1,125	1,714	14,053	37,990
Iron slabs .....	....	....	....	1
Iron bars	7	286	447	1,627
Boiler and other plate (including skelp)	24	....	295	204
Sheets, skelp and saw plate	189	18	5,768	8,343
Die blocks or blanks, etc.	1	2	68	93
Tin plate, taggers' tin and terne plate	4	29	83	191
Structural shapes	1,902	2,537	28,691	64,552
Sheet piling .....	....	....	....	2,161
Rails and track material	669	1,134	2,884	7,673
Welded pipe	183	357	4,105	7,464
Other pipe	2,156	1,573	17,364	27,563
Cotton ties	868	....	8,625	454
Other hoops and bands	922	932	12,559	21,927
Barbed wire	671	1,624	10,257	12,262
Round iron and steel wire	167	345	969	3,823
Telegraph and telephone wire	1	....	7	16
Flat wire and steel strips	180	371	1,852	2,814
Wire rope and strand	214	320	1,588	2,818
Other wire	49	146	1,064	2,986
Nails, tacks, and staples	739	321	5,667	13,037
Bolts, nuts, and rivets	62	10	156	477
Horse and mule shoes	39	64	339	341
Rolled and finished steel	10,349	12,037	116,660	224,433
Malleable iron pipe fittings	11	117	87	404
Cast iron pipe and fittings	50	658	1,121	2,616
Castings and forgings	499	391	2,801	3,691
Total	27,953	37,071	181,712	443,186

¹ Manganese, ² chrome, ³ silicon and ⁴ alloy content, respectively.

Exports (In Gross Tons)	September		Nine Months Ended September	
	1938	1937	1938	1937
Pig iron	66,600	64,945	312,507	653,369
Ferromanganese and spiegeleisen	1	1	227	1,626
Other ferroalloys	129	655	930	2,103
Scrap, iron and steel	147,203	252,713	2,164,857	3,231,508
Scrap, tin plate	1,862	2,882	12,289	25,472
Waste-waste tin plate	608	596	5,292	24,910
Pig iron, ferroalloys and scrap	216,403	321,792	2,496,102	3,988,988
Ingots, blooms, billets, sheet bars	3,916	18,875	140,652	195,513
Ingots, etc., alloy steel, incl. stainless	2,054	1,778	7,214	6,794
Skelp	3,469	11,830	13,724	69,997
Wire rods	508	7,571	19,144	43,568
Semi-finished steel	9,947	40,054	180,734	315,872
Bars, plain and reinforcing	8,650	11,635	108,052	102,187
Bars, alloy steel	887	546	3,693	4,866
Bars, stainless steel	265	9	543	180
Iron bars	180	138	1,123	1,956
Plates, plain and fabricated	10,628	44,369	159,435	288,914
Plates, alloy steel	24	55	2,017	2,390
Plates, stainless	100	111	243	134
Sheets, galvanized steel	6,141	6,794	51,932	55,056
Sheets, galvanized iron	315	400	2,993	3,960
Sheets, black, plain steel	16,362	27,069	140,971	206,225
Sheets, alloy steel	206	992	2,682	4,538
Sheets, stainless	42	105	1,462	694
Sheets, black iron	676	1,372	5,657	8,481
Hoops, bands, strips, plain steel	5,456	10,715	42,983	86,391
Hoops, bands, strip steel, alloy	104	53	320	968
Hoops, bands, strip steel, stainless	59	43	453	420
Tin plate and taggers' tin	12,061	20,815	123,253	234,082
Terne plate (including long ternes)	246	404	3,535	4,092
Structural shapes, plain material	5,131	10,583	64,624	109,307
Structural material, fabricated	3,199	3,312	28,291	27,372
Sheet piling	37	1,296	2,588	4,807
Tanks, steel	5,341	3,503	30,464	24,412
Steel rails	13,817	9,704	67,111	78,691
Rail fastenings, switches, spikes, etc.	1,581	895	10,177	12,759
Boiler tubes	736	950	10,827	9,851
Casing and oil line pipe	3,355	5,509	53,769	68,657
Pipe, black and galv., welded steel	2,416	3,165	17,332	32,005
Pipe, black and galv., welded iron	774	351	4,220	5,321
Plain and galvanized wire	5,073	3,091	34,251	45,117
Barbed wire and woven wire products	5,019	2,643	25,447	31,507
Wire rope and other products	784	1,623	7,656	13,285
Nails and tacks	2,467	1,366	17,879	17,639
Bolts, nuts, rivets and washers except track	625	1,065	5,969	8,705
Other finished steel	158	222	2,488	2,209
Rolled and finished steel	112,915	174,903	1,031,440	1,497,178
Cast iron pipe and fittings	3,301	3,088	24,418	25,179
Malleable iron screwed fittings	239	284	2,326	3,762
Carwheels and axles	1,347	1,673	17,233	12,607
Castings, iron and steel	659	608	4,835	9,794
Castings, alloy steel, incl. stainless	43	125	615	1,236
Forgings, plain	1,162	1,126	6,574	6,945
Forgings, alloy steel, incl. stainless	52	54	308	676
Castings and forgings	6,803	6,958	56,309	60,199
Total	346,068	543,707	3,767,585	5,862,237

Nine-Month Steel Export Trade Exceeds One Million Tons

OUTSTANDING items in the iron and steel export trade in the first nine months of this year, in order of size, were pig iron, plates, ingots, black steel sheets, tin plate, and steel bars. These were all above the 100,000-ton level. Pig iron exports at 312,507 tons were almost twice the volume of plate exports, the next in order of size.

The text material which usually appears with these tables appeared last week on page 80-B.

United States Imports of Pig Iron by Countries of Origin

	September		Nine Months Ended September	
	1938	1937	1938	1937
United Kingdom .....	....	....	42	100
British India	102	5,740	11,359	50,860
Germany .....	....	....	....	510
Netherlands	6,820	1,506	12,725	21,150
Canada .....	....	465	1,495	5,362
France .....	....	....	....	....
Belgium .....	....	....	....	....
Norway .....	....	200	3,538	875
Sweden .....	....	....	25	600
Russia .....	....	....	....	4,581
Other countries .....	....	....	....	....
Total	6,922	7,911	29,184	84,038

September Imports of Iron and Manganese Ores

	Iron Ore		Manganese Concentrates, 35 Per Cent or Over	
	1938	1937	1938	1937
Canada	310	2,245	....	....
Cuba	32,000	27,000	7,149	....
Chile	110,350	131,600	....	....
Spain .....	....	....	....	....
Norway .....	....	6,713	....	....
Sweden	40,364	17,037	....	....
French Africa .....	....	....	....	....
Russia .....	....	....	16,106	....
India .....	....	....	1,729	4,151
Brazil .....	....	....	....	3,386
Gold Coast .....	....	....	7,732	4,162
Other countries	5,008	3,004	....	8,463
Total	188,032	187,599	32,716	20,162

Steel Products Produced for Sale in Third Quarter

THE American Iron and Steel Institute's report (AIS-10) of steel products produced for sale in the third quarter shows a total of 5,287,995 gross tons, including 258,412 tons for export and 509,108 tons sold to members of the industry for further conversion. This makes a

total of 14,037,151 tons for the first nine months of the year.

In the third quarter the products which attained the highest production in terms of percentage of capacity were sheet piling, sheets, strip, tin plate and wire. The dearth of rail-

road business is shown by the fact that heavy rail capacity was operated at only 12.2 per cent in the quarter and at only 18.3 per cent in the nine months. Other products used almost exclusively by the railroads, such as rolled wheels, axles and spikes were also at low figures.

AMERICAN IRON AND STEEL INSTITUTE										Third Quarter - 1938				
Capacity and Production for Sale of Iron and Steel Products										PRODUCTION FOR SALE—GROSS TONS				
		Number of companies	Items	Annual Capacity Gross tons	Current Quarter			To Date (9 Months 1938)						
					Total	Per cent of capacity	Shipments		Total	Per Cent of capacity	Shipments			
							Export	To members of the industry for conversion into further finished products			Export	To members of the industry for conversion into further finished products		
STEEL PRODUCTS	Ingot blooms, billets, slabs, sheet bars, etc.	29	1	xxxxxxx	413,945	xxx	9,512	272,360	1,087,227	xxx	116,994	617,912		
	Heavy structural shapes	8	2	4,657,100	366,575	31.5	15,164	-	992,657	28.4	55,306	xxxxxxx		
	Steel piling	3	3	234,500	32,994	56.3	768	-	77,109	43.8	2,786	xxxxxxx		
	Plates—Sheared and Universal	20	4	5,992,710	384,008	25.6	19,864	2,076	1,006,078	22.4	87,180	4,359		
	Skelp	6	5	xxxxxxx	112,135	xxx	10,056	63,990	261,648	xxx	15,569	165,564		
	Rails—Standard (over 60 lbs.)	4	6	3,395,000	103,965	12.2	1,392	-	465,453	18.3	15,975	xxxxxxx		
	Light (60 lbs. and under)	6	7	436,500	8,756	8.0	863	-	27,698	8.5	4,536	xxxxxxx		
	All other (Incl. girder, guard, etc.)	2	8	105,000	3,521	13.4	1,099	-	13,465	17.1	4,593	xxxxxxx		
	Splice bar and tie plates	14	9	1,310,050	45,796	14.0	599	-	167,578	17.1	2,422	xxxxxxx		
	Bars—Merchant	37	10	xxxxxxx	433,890	xxx	14,299	43,198	1,139,141	xxx	72,543	128,814		
	Concrete reinforcing—New billet	15	11	xxxxxxx	181,965	xxx	10,747	-	439,921	xxx	26,130	xxxxxxx		
	Rerolling	20	12	xxxxxxx	33,522	xxx	2,340	-	92,012	xxx	6,397	xxxxxxx		
	Cold finished—Carbon	18	13	xxxxxxx	69,582	xxx	1,115	-	170,791	xxx	4,754	xxxxxxx		
	Alloy—Hot rolled	14	14	xxxxxxx	83,676	xxx	2,076	7,917	201,095	xxx	8,801	23,021		
	Cold finished	14	15	xxxxxxx	8,286	xxx	84	-	19,460	xxx	517	xxxxxxx		
	Hoops and baling bands	5	16	xxxxxxx	15,906	xxx	385	-	40,359	xxx	1,149	xxxxxxx		
	TOTAL BARS	55	17	11,547,859	826,827	28.6	31,046	51,110	2,102,779	24.3	120,291	151,855		
	Tool steel bars (rolled and forged)	15	18	94,150	4,044	17.2	280	-	11,468	16.2	476	xxxxxxx		
	Pipe and tube—B. W.	16	19	1,771,779	150,122	33.9	4,974	-	374,335	28.2	13,955	xxxxxxx		
	L. W.	11	20	1,428,380	68,431	19.2	2,317	-	210,624	19.7	8,863	xxxxxxx		
	Electric weld	4	21	614,000	41,468	27.0	1,545	-	102,251	22.2	8,571	xxxxxxx		
	Seamless	15	22	2,942,900	279,202	37.9	12,682	-	787,941	35.7	58,430	xxxxxxx		
	Conduit	8	23	163,270	10,903	26.7	513	-	30,611	25.0	1,211	xxxxxxx		
	Mechanical Tubing	5	24	182,300	13,423	29.5	960	-	38,588	28.2	3,239	xxxxxxx		
	Wire rods	19	25	xxxxxxx	109,367	xxx	2,090	41,774	260,647	xxx	19,489	96,651		
	Wire—Drawn	38	26	1,961,370	218,869	44.6	12,610	1,889	548,519	37.3	35,022	6,444		
	Nails and staples	19	27	1,078,572	118,653	44.0	6,972	-	310,016	38.3	18,125	xxxxxxx		
	Barbed and twisted	16	28	425,477	33,441	31.4	10,825	-	99,584	31.2	23,012	xxxxxxx		
	Woven wire fence	15	29	711,825	33,077	18.6	395	-	132,410	24.8	996	xxxxxxx		
	Bale ties	11	30	110,677	13,168	47.6	74	-	31,435	37.9	254	xxxxxxx		
	All other wire products	4	31	23,600	823	13.9	2	-	2,581	14.6	6	xxxxxxx		
	Fence posts	14	32	147,100	9,120	24.8	341	-	32,637	29.6	825	xxxxxxx		
Black plate	12	33	503,015	67,546	53.7	1,731	25,925	201,845	53.5	5,606	67,612			
Tin plate—Hot rolled	11	34	1,631,956	121,150	29.7	13,371	-	484,952	39.6	119,777	xxxxxxx			
Cold reduced	10	35	1,828,100	210,226	46.0	21,325	-	585,690	42.7	50,019	xxxxxxx			
Sheets—Hot rolled	25	36	xxxxxxx	553,383	xxxx	22,446	22,770	1,247,165	xxxx	89,775	25,896			
Hot rolled annealed	37	38	xxxxxxx	259,625	xxx	18,410	-	616,961	xxx	58,788	xxxxxxx			
Galvanized	16	39	xxxxxxx	254,812	xxx	18,450	-	673,878	xxx	61,671	xxxxxxx			
Cold rolled	19	40	xxxxxxx	63,095	xxx	2,451	-	162,066	xxx	9,218	xxxxxxx			
All other	15	41	xxxxxxx	1,130,915	43.1	61,757	22,770	2,700,070	34.3	219,452	25,896			
TOTAL SHEETS	26	41	10,504,353	1,130,915	43.1	61,757	22,770	2,700,070	34.3	219,452	25,896			
Strip—Hot rolled	25	42	3,223,200	213,775	26.5	6,890	27,214	550,464	22.8	25,359	57,664			
Cold rolled	37	43	1,178,961	96,070	32.6	2,821	-	222,986	25.2	7,285	xxxxxxx			
Wheels (car, rolled steel)	5	44	380,319	15,535	16.3	1,198	-	42,325	14.8	2,487	xxxxxxx			
Axles	5	45	425,900	12,599	11.8	1,380	-	29,715	9.3	7,237	xxxxxxx			
Track spikes	11	46	302,350	15,889	21.0	996	-	40,025	17.7	1,655	xxxxxxx			
All other	4	47	22,107	1,057	19.1	-	-	3,740	22.6	48	xxxxxxx			
TOTAL STEEL PRODUCTS	141	48	xxxxxxx	5,287,995	xxx	258,412	509,108	14,037,151	xxx	1,057,549	1,191,977			
Estimated total steel finishing capacity based on a yield from ingots of 70.6 %														
		49	48,152,500	xxxxxxx	39.7	xxxxx	xxxxxxx	xxxxxxx	35.6	xxxxxxx	xxxxxxx			
IRON PRODUCTS	Pig iron, ferro manganese and spiegel	29	50	xxxxxxx	685,914	xxx	139,434	109,114	2,158,614	xxx	329,570	264,084		
	Ingot moulds	4	51	xxxxxxx	46,899	xxx	1,209	-	98,083	xxx	4,400	xxxxxxx		
	Bars	12	52	230,519	3,929	6.8	294	30	11,196	6.5	311	82		
	Pipe and tubes	4	53	185,457	6,538	14.1	49	-	19,076	13.7	374	xxxxxxx		
	All other	2	54	63,560	1,427	9.0	164	668	5,316	11.2	306	1,944		
TOTAL IRON PRODUCTS (ITEMS 52 to 54)	14	55	421,576	11,894	11.3	507	698	35,588	11.3	991	2,002			

Total steel products produced for sale, less shipments to members of the industry for conversion into further finished products: Current quarter 4,778,887 G.T.; 39.7% of Finishing Capacity.
To date 12,845,174 G.T.; 35.6% of Finishing Capacity.

The above tonnages represent 70.6% of the ingots produced by companies whose products are included above.

Total Companies
Included - 164

October Pig Iron Daily Output Up 18.2 Per Cent

ON the basis of revised returns from companies producing pig iron, actual production of coke pig iron in October was 2,052,284 gross tons, compared with 1,680,435 tons in September. The daily rate last month showed a gain of 18.2 per cent over that in September, or from 56,015 tons to 66,203 tons.

On Nov. 1, there were 115 furnaces making iron, operating at a rate of 70,690 tons daily, compared with 96 furnaces on Oct. 1, producing at the rate of 57,625 tons daily. Furnace changes, as given in last week's issue, page 93, remained the same.

Daily Average Production of Coke Pig Iron

	Gross Tons				
	1938	1937	1936	1935	1934
January	46,100	103,597	65,351	47,656	39,201
February	46,367	107,115	62,886	57,448	45,131
March	46,854	111,596	65,816	57,098	52,243
April	45,871	113,055	80,125	55,449	57,561
May	40,485	114,104	85,432	55,713	65,900
June	35,409	103,584	86,208	51,570	64,338
½ year	43,497	108,876	74,331	54,138	54,134
July	38,767	112,866	83,686	49,041	39,510
August	48,193	116,317	87,475	56,816	34,012
September	56,015	113,679	91,010	59,216	29,935
October	66,203	93,311	96,512	63,820	30,679
November .....	.....	66,891	98,246	68,864	31,898
December .....	.....	48,075	100,485	67,950	33,149
Year .....	.....	100,305	83,658	67,556	43,592

Production by Districts and Coke Furnaces in Blast

FURNACES	Production (Gross Tons)		November 1		October 1	
	October (31 Days)	September (30 Days)	Number in Blast	Operating Rate, Tons a Day	Number in Blast	Operating Rate, Tons a Day
New York:						
Buffalo	136,194	96,585	7	4,530	5	3,460
Other New York and Mass.	23,774	17,947	2	805	1	600
Pennsylvania:						
Lehigh Valley	49,212	45,600	4	1,585	4	1,520
Schuylkill Valley	15,525	.....	1	555	0	.....
Suequehanna and Lebanon Valleys	15,507	13,684	1	500	1	455
Pittsburgh District	356,112	291,634	17	12,050	14	9,865
Ferro. and Spiegel	700	610	1	25	1	20
Shenango Valley	36,788	21,642	2	1,185	2	1,180
Western Pennsylvania	49,200	51,202	3	1,585	3	1,705
Ferro. and Spiegel .....	.....	.....	0	.....	0	.....
Maryland	122,354	105,278	4	3,945	4	3,510
Wheeling District	111,692	105,391	6	3,605	6	3,515
Ohio:						
Mahoning Valley	219,902	182,026	11	8,300	8	6,070
Central and Northern ..	176,531	136,628	10	6,060	8	4,765
Southern	34,406	30,316	4	1,110	4	1,010
Illinois and Indiana	367,118	291,648	17	12,945	15	10,575
Michigan and Minnesota ..	72,547	66,866	5	2,850	4	2,230
Colorado, Missouri and Utah ..	20,355	18,268	2	655	2	610
Ferromanganese .....	.....	.....	0	.....	0	.....
The South:						
Virginia .....	.....	.....	0	.....	0	.....
Ferromanganese	2,921	.....	1	95	0	.....
Kentucky	10,327	9,183	1	335	1	305
Alabama	231,119	195,927	0	7,970	13	6,290
Tennessee .....	.....	.....	0	.....	0	.....
Total	2,052,284	1,680,435	115	70,690	96	57,625

Production of Coke Pig Iron and Ferromanganese

	Gross Tons		Ferromanganese†	
	Pig Iron*		1938	1937
January	1,429,085	3,211,500	22,388	23,060
February	1,298,268	2,999,218	20,205	24,228
March	1,452,487	3,459,473	21,194	27,757
April	1,376,141	3,391,665	18,607	26,765
May	1,255,024	3,537,231	13,341	34,632
June	1,062,021	3,107,506	14,546	34,415
½ year	7,873,026	19,706,593	110,281	170,857
July	1,201,785	3,498,858	20,818	23,913
August	1,493,995	3,605,818	6,088	29,596
September	1,680,435	3,410,371	630	26,100
October	2,052,284	2,892,629	3,621	26,348
November .....	.....	2,006,724	.....	25,473
December .....	.....	1,490,324	.....	22,674
Year .....	.....	36,611,317	.....	324,961

*These totals do not include charcoal pig iron.
†Included in pig iron figures.

Merchant Iron Made, Daily Rate

	Tons				
	1938	1937	1936	1935	1934
January	10,635	16,106	10,537	3,926	7,800
February	8,854	16,514	11,296	6,288	7,071
March	8,524	16,457	10,831	7,089	7,197
April	8,273	14,517	13,897	8,799	8,838
May	6,431	19,483	12,814	8,441	9,099
June	5,375	15,870	14,209	7,874	9,499
July	5,495	19,609	11,619	8,644	7,880
August	6,614	17,831	12,148	8,194	6,043
September	11,205	20,065	12,526	10,090	4,986
October	10,799	18,950	13,645	11,199	5,765
November .....	.....	15,662	14,739	12,503	6,610
December .....	.....	10,964	14,852	13,312	4,399

U. S. Studies Silver Lining for Barrels

WASHINGTON.—A Bureau of Standards research project, sponsored by a group of silver producers, has discovered that the metal is an ideal one for lining cans, barrels and shipping containers for high quality food products and has possibilities as an alloying element for increasing the strength or otherwise improving certain engineering alloys.

Bureau of Standards experts are experimenting with steel and copper containers by plating with silver and report that the resistance which the metal exhibits to such a variety of corrosive substances makes it preeminently suitable for handling foodstuffs, beverages and chemicals. Tin plate is not used, the silver plating being put on directly over the steel or copper. The immediate job under consideration is to find methods for producing impervious thin silver coatings offering a maximum of protection at a minimum cost.

Further study by members of the project, the Bureau reports, shows that a need exists for a container more resistant to chemical attack than is now available for handling quality products.

THIS WEEK

ON THE

ASSEMBLY LINE

By W. F. SHERMAN

Detroit Editor

... Automobile companies buying more freely ... Auto production for November estimated at 365,000 units ... Greater potential market for new trucks is indicated in AMA report ... Ford announces price reduction and places Mercury in \$900 class.

DETROIT.—The attitude of industrial buyers has improved in the last 30 days and now is even better than it was a year ago. This fact is revealed by the current survey of the Purchasing Agents Association of Detroit. There is less hand-to-mouth buying and more long-term buying than shows in the record of 12 months ago. The improved sentiment, incidentally, follows a temporary recession in sentiment recorded just one month ago.

With auto production now starting the third month of its upswing, 7 per cent of the buyers in the Detroit area in October were covering their needs until the end of next March; 28 per cent fully protected themselves for the rest of the quarter; 31 per cent bought in October for 60 days production. A comparatively large group, 24 per cent, still is buying on a 30-day basis, while 10 per cent admit that only immediate needs are being taken care of.

Production Gains

Automobile production swelled upward to 80,030 units last week, compared with 73,335 in the previous week, according to Ward's Automotive Reports. This figure was a new high for 1938, the third such mark established, and the seventh consecutive week of advancing activity in the auto industry. The weekly production total is rapidly nearing the point where it will exceed the comparable figure for last year. This week, for instance,

there is a spread of only 9740 between the current figure and last year's corresponding figure of 89,770. Ward's anticipates an output of 365,000 cars and trucks during November, barring unforeseen circumstances. This is nearly equal to the 376,000 units produced during November, 1937.

Ford maintained its previous week's level of production, but Chevrolet and Plymouth both registered slight increases, Chevrolet going from 21,000 to 22,500 and Plymouth from 10,900 to 11,300.

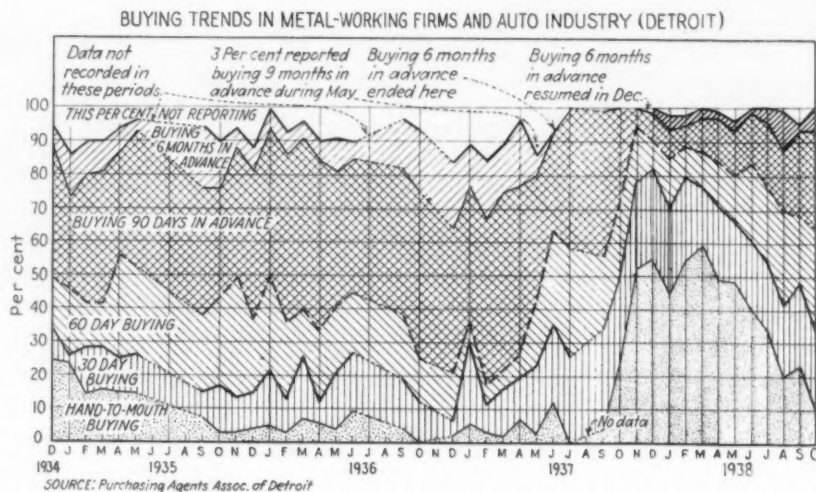
Labor Troubles Feared

With employment back again within a fraction of a point of the 1938 peak, there are unfortunate rumors of

strikes to come now that Michigan's political election is over. The general feeling has been that CIO leaders refrained from upsetting work schedules during the campaign but that labor conditions will become more unsettled now that voting is completed. The reasoning went this way: The election of Fitzgerald might precipitate sit-downs from groups that wanted to refute his campaign allegations that sit-downs could be eliminated; on the other hand, a Murphy victory might strengthen the belief of some union groups that sit-downs or disturbances would pass unnoticed by the State Capitol.

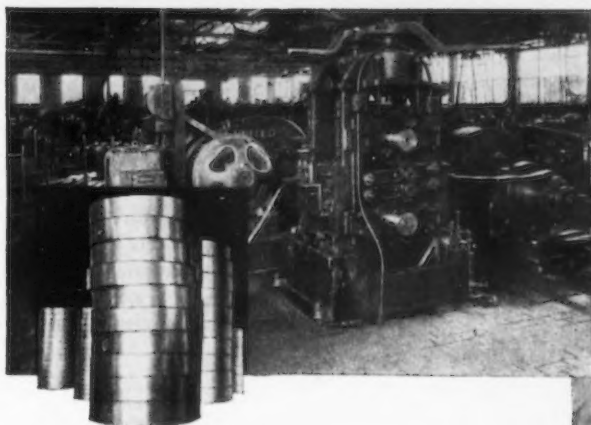
Truck Registrations Decline

A shrinkage in motor truck registrations during the last year is indicated in statistics compiled by the Automobile Manufacturers Association. Some old vehicles are not being registered and many have been junked, so the total registration for all vehicles in the United States dropped from 29,000,000 in 1937 to 28,800,000 in 1938. Passenger car registrations stand unchanged at 24,600,000, but motor truck



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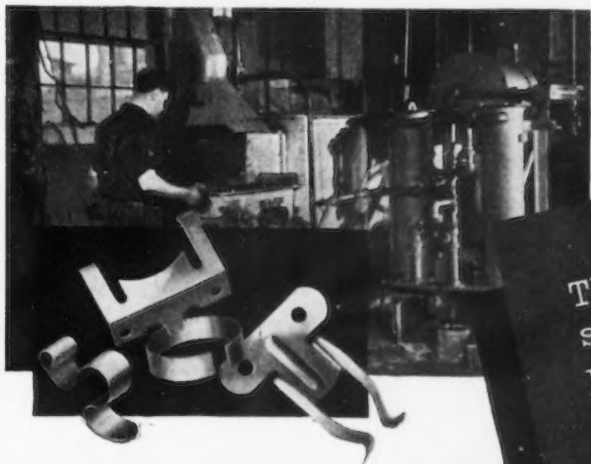


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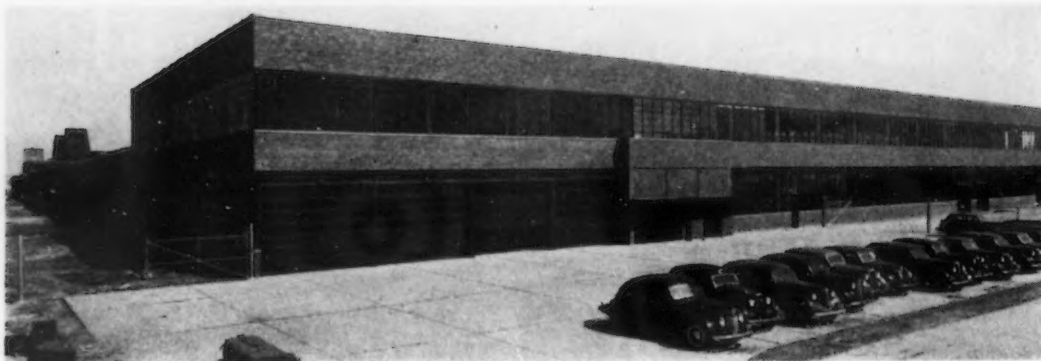
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FIRST step in a \$6,000,000 truck manufacturing and sales program was the dedication last Thursday of this new plant of Dodge Truck Division of Chrysler Corp. Floor space is 693,163 sq. ft. on a 49-acre site near Rotary Electric Steel Corp., on Mound Road. Albert Kahn, Inc., were the architects and engineers.

registration has dropped from 4,400,000 to 4,200,000. The figures would seem to indicate a greater potential market for new trucks. Other pertinent data in the AMA report for the year ending September, 1938, include the following:

	1938	1937
Factory Sales		
U. S. and Canada	2,704,992	5,110,000
Passenger cars	2,130,214	4,182,000
Trucks	574,778	928,000
Percentage change from previous year..	-47	+12
Wholesale value of cars and trucks	\$1,683,600,000	\$2,876,500,000

The lower output had its effect on employment and payrolls, of course. The total number employed in auto body and parts factories in 1938 decreased about 34½ per cent from 1937 levels (from 515,000 to 337,000) and the weekly payroll dropped from \$16,000,000 to \$9,200,000, a decrease of about 42½ per cent.

Retail Sales Improving

Paralleling production increases, an accelerated pickup in new passenger car sales in the United States in October is clearly indicated in preliminary registration reports from the nation's principal cities, covering the

first 25 days of last month, according to R. L. Polk & Co. During that period, sales exceeded September sales by 35.62 per cent.

The Ford Motor Co., after exhibiting its new models only one day, reported the greatest public interest in the last 20 years and more actual buying than at any time since the famous Model "A" was introduced 11 years ago.

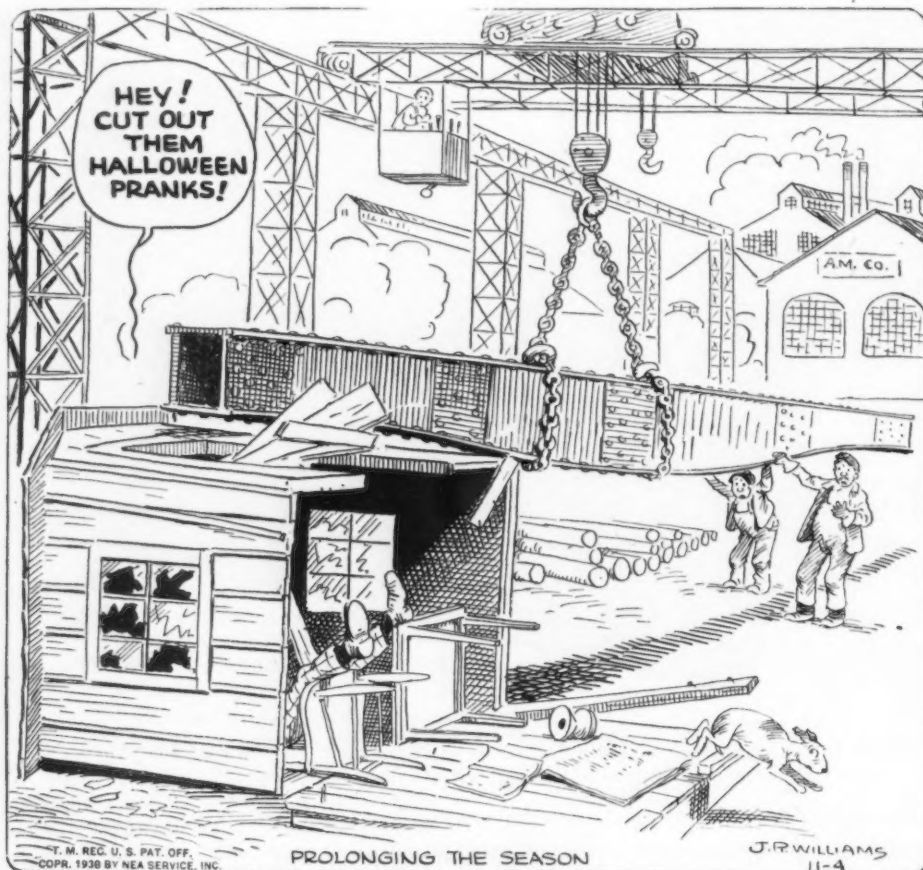
Speculation as to pricing of the new Ford Mercury Eight was ended, of course, with official announcement of prices. As stated many weeks ago in this column, the car is in the \$900 class, delivered prices starting at \$894 in Detroit, plus Federal and state taxes amounting to \$49.70. This is the price of the two-door sedan model. Other prices at Detroit, including all transportation and delivery charges, are: four-door town sedan, \$934; sedan coupe, \$934; sport convertible, \$994. The prices include a long list of equipment over and above what usually is called "standard," including electrical cigar lighter, electric clock, lock for glove compartment, twin air electric horns, two sun visors, dual windshield wipers, headlight beam indicators and foot control, ash trays in instrument panel and rear seat arm rests, two tail-lights and two stop-lights, a new battery condition indicator and rustless steel wheel bands.

The prices of the regular Ford V-8 have been reduced \$5 to \$20 for 1939. The base price \$580 is for the 60 hp. Ford V-8 coupe. This is the price at the factory, with transportation charges and Federal and state taxes extra. In Detroit the model will deliver, with transportation charges paid, for \$584. The price of the 85 hp. Ford V-8 is \$40 higher. The new de luxe model prices start at \$680 at the factory, or \$684 in Detroit.

As show date rolled around, Willys-Overland Motors, Inc., announced that it will revive the name "Overland,"

THE BULL OF THE WOODS

BY J. R. WILLIAMS



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PROLONGING THE SEASON

J. R. WILLIAMS
11-4

carried by more than 2,500,000 Toledo-made cars, of which 500,000 are still registered and in use. For the last few years, the company has simply used the name Willys on its small car. The new name, Willys-Overland, will be attached to the more powerful car, which will be exhibited for the first time at the Auto Show this week.

More Stainless Steel Used

Stainless steel is popular for decorative purposes in the 1939 automobiles. Ford uses a lot of it, including the wheel bands, which are standard not only in the Mercury but also the de luxe V-8. On the new Buicks, the stainless steel trim strip follows the V of the radiator shell from the grille up over the hood, terminating at the cowl. The body belt molding which extends along the side of the hood to the radiator shell also is made of stainless steel.

"Dynamite Squad" at Republic Plant Directed by Communist, Says Witness

WASHINGTON. — Testimony that a "well known Communist" and a top man in SWOC's Warren, Ohio, headquarters, had directed activities of a dynamite squad during the Republic Steel strike at Warren, in June, 1937, was given to the House committee investigating un-American activities last week by two witnesses from Cleveland and Elyria, Ohio.

Appearing at the request of Representative Dies, Democrat of Texas, chairman of the committee which has been openly opposed by Cabinet members and which has been the subject of severe White House criticism, Lester J. Abele, Cleveland, Adjutant of the 73rd Brigade of the Ohio National Guard, and at one time assigned to work on the case with the city solicitor of Cleveland, told the committee that three members of the dynamite squad confessed having received instructions to blow up property of the Republic Steel Corp., including tracks, bridges, tanks of highly volatile benzol, homes of non-strikers, and to damage the municipal electric plant and a city reservoir.

Edgar Herzog, who testified that he joined the Communist Party in 1932 to learn more about it and that he was subsequently active in the American Legion's committee on un-American activities, said that by attending



ANTICIPATED for months, the Mercury V-8 is offered by Ford Motor Co. in four body types on a 116-in. wheelbase. The car is more than 16 ft. long from bumper to bumper. Both seats hold three passengers comfortably. From the front, the hood appears extra-wide, with the width accentuated by the horizontal bars in the low grille.

a Communist Party meeting he heard Gus Hall, described as a "well known Communist" and "top man" at SWOC headquarters in Warren, assign dynamite crews to blow up a bridge connecting the Republic plant. The job was effectively stopped, Herzog asserted, by informing the National Guard which took the necessary action and prevented the dynamiting.

Other testimony introduced was that Warren headquarters of the CIO had been the hiding place for "home-made" bombs, other explosives and machine guns and that plans subsequently con-

fessed to called for the bombing of Republic plant from the air. Seven of the eight men indicted pleaded guilty to charges of possession and use of explosives in the cases in which Abele said he helped obtain confessions. Four, he said, were sentenced to one to 20 years, three were paroled, and the eighth—Hall—later pleaded guilty to a lesser charge and was fined \$500. In the words of Representative Mosier, Democrat of Ohio, a member of the committee, "a Communist leader of the whole outfit was let go for a \$500 fine paid by the CIO."

Book Coordinates Combustion Data

THE interest in combustion phenomena, shared alike by chemists, physicists, and engineers, has led to a large number of investigations which vary widely in purpose and accomplishment as well as in actual scientific value. There has been a need for coordination and critical appraisal of these recorded investigations, and this has been done in the book, "Combustion, Flames and Explosions of Gases," by B. Lewis and G. von Elbe, distributed by the Macmillan Co., New York. Also, believing that well-founded speculation has great value as a stimulus to further research, the authors have not hesitated to express rather definite views on some highly controversial subjects. These views are given with full reasons for their adoption, but the authors invite any disagreement that is based on logical alternatives. The book is divided into four parts: "Chemistry and Kinetics

of the Reactions Between Fuel Gases and Oxygen"; "Propagation of Flames"; "State of the Burnt Gas"; and "Problems in Technical Combustion Processes."

"Giants At Work" Title Of Edison Battery Film

EDISON STORAGE BATTERY division of Thomas A. Edison, Inc., has just released a four-reel picture, "Giants At Work," devoted to recent developments of material handling in the battery industrial truck system.

Much of the film concerns the steel industry, which last year passed the railroads as the largest user of industrial trucks for material handling.

Production of the new picture, requiring many months, took the company's cameraman more than 20,000 miles to visit recent installations, of which "shots" were made.

THIS WEEK IN WASHINGTON

... Flood of protests expected against Public Contracts Board decision affecting steel plant wages . . . 62.5c. minimum set for 36 Northern States and 45c. for 12 Southern States.

By L. W. MOFFETT

Resident Washington Editor
The Iron Age

WASHINGTON. — Indications point to vigorous protest, if not court challenge, by steel companies against the far reaching recommendations announced last Saturday by the Public Contracts Board for reducing the industry's wage districts to two sections with a minimum of 62.5c. an hr. in 36 Northern states and 45c. an hr. in 12 Southern states for common labor, should the recommendations be approved by Secretary of Labor Frances Perkins.

The wages and two-wage district setup recommended even exceed the demands of the Steel Workers' Organizing Committee, which was responsible for the steel wage determination proceeding. SWOC Chairman Philip Murray proposed that the three wage districts be established, with a minimum of 62.5c. in the East; 45c. in the South and 60c. in the far West. In other respects the proposed findings and recommendations closely follow SWOC representations, including pointed attacks by implication on the Bethlehem Steel Co. and the Republic Steel Corp., which SWOC has been unable to organize.

Notwithstanding the board's proposed wage findings, the result of hearings on July 25-26 under the Walsh - Healey (Public Contracts) Act, which governs wages for em-

ployees engaged on Federal Government contracts in excess of \$10,000, it is a strong belief that the board has purposely opened the way for wage differentials based on company size. While disregarding protests of the larger and medium-size companies, it seems clear that both the board and SWOC agree with the smaller companies that they could not possibly increase wages under present conditions and survive if wage increases were forced upon them.

Plants in Three Sizes

Under the category fixed by the board, plants are divided into three groups according to annual capacity—large, over 1,000,000 tons; medium,

over 300,000 tons; and small, less than 300,000 tons.

Proposed differentials according to plant size are seen in a board recommendation "that further study be made of the position of the smaller companies in competition for Government business."

Whether use of the comparative term "smaller" means both the medium and small groups as distinguished from the large group is not plain. The assumption is that these differentials, if fixed, would be provided under Section 6 of the act which permits exemptions. Steel attorneys at the hearings insisted that the act does not allow for differentials. It is understood that the Solicitor of the Department of Labor drafted a ruling, which was never made public, which sustained the position of steel counsel. But it is also understood that board members are convinced that wage differentials, based on plant size, can be fixed. SWOC has wage contracts with some of the smaller companies which provide for rates less than those paid by the large compa-

Mr. Morrow Called the Turn

IT'S a safe bet that President Hugh Morrow of the Sloss-Sheffield Steel & Iron Co., Birmingham, makes no pretensions that he is psychic but after listening to SWOC's Phil Murray the steel executive called the turn on the wage rate that would be proposed for the South. Mr. Morrow had told the Public Contracts Board that the indication was that Mr. Murray had asked "you to fix a common labor rate for the Birmingham district at 45c an hr., because the

Tennessee Coal, Iron & Railroad Co. pays that rate."

Soon after the following exchange of words took place between Board Member Strackbein and Mr. Morrow:

"Mr. Morrow, I am interested in knowing why you took it for granted that the board would recommend 45c. an hr. for the Southern district," inquired Mr. Strackbein.

"That has always been my experience in Washington," responded Mr. Morrow amid lively laughter.



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panies and desires to protect these companies against large company competition. An example is the SWOC contract with the Eastern Rolling Mill Co., Baltimore, providing a common labor rate of 53c., while the nearby Sparrows Point, Md., plant of the Bethlehem Steel Co. has a rate of 56c. SWOC is particularly eager to protect companies with which it has contracts in competing with Bethlehem and Republic.

Full Report Not Available

Summarized recommendations made by the board, based on a 250-page report, which it will not make available, even to the steel companies, follow:

"(1) 45c. an hr. within the area made up of the states of Louisiana, Arkansas, Mississippi, North Carolina, South Carolina, Florida, Oklahoma, Texas, Alabama, Tennessee, Georgia, and Virginia.

"(2) 62½c. an hr. within the area

made up of the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey, Maryland, Delaware, West Virginia, Kentucky, Ohio, Indiana, Michigan, Wisconsin, Illinois, Missouri, Iowa, Minnesota, North Dakota, South Dakota, Nebraska, Kansas, New Mexico, Colorado, Wyoming, Montana, Idaho, Utah, Arizona, Nevada, California, Oregon, Washington, and the District of Columbia."

The further recommendations were made:

"That further study be made of minimum wages paid in the manufacture of tin plate, tin mill black plate and terne plate:

"That further study be made of the effect of the prevailing minimum wage found for the South on the competition in the industry for Government business;

"That further study be made of the position of the smaller companies in the competition for Government business;

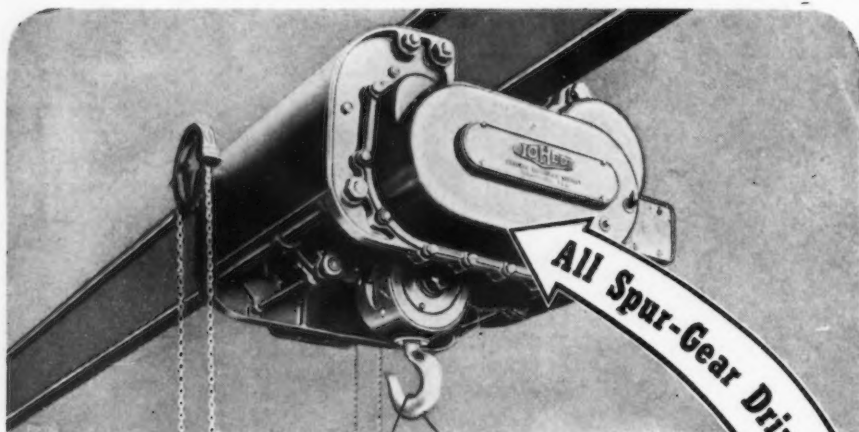
"That an allowance be made in the determination of this case for the employment of apprentices at wages less than the prevailing minimum wages, provided that the employer has on file an active indenture entered into in accordance with the standards of the Federal Committee on Apprenticeship."

Only the summary has been sent to steel companies.

In fixing wage rates the board adopted the NRA code definition of the steel industry—blast furnace, steel works and rolling mill—except as to tin plate, tin mill black plate and terne plate. These products were not included on the ground that the Government does not buy them, except in small lots. However, the recommendations indicate they will be subsequently included. It was stated that they will be embraced in later findings if in the future the Government buys these products in sufficient quantities to justify a wage determination. It is fully expected that "justification" will be found.

Increased Cost Heavy

The board made no estimate of the increased cost to steel companies if its recommendations were promulgated by Miss Perkins. But it is a considerable figure. The increases would apply particularly to independents in the South, including the Republic company plant, where generally the common labor rate is 40c. or



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36½c. as compared with the Tennessee Coal, Iron & Railroad Co. rate of 45c., and to the East, where the larger and medium size companies pay 56c., including the Allentown, Pa., plant of the American Steel & Wire Co. It would apply to a less degree to plants in the Pittsburgh and Valleys area, where the prevailing rate is 62½c. In the Far West rates generally range from 60c. to 70c. But the small Eastern companies, engaged in specialty manufacture pay considerably less than these so-called prevailing wages.

The board report, prepared by Chairman Thomas Holland, said that 99 companies, operating 234 plants, reported their wage data, that of all workers in the steel industry covered by the survey, 8.6 per cent are common laborers, and that the reports voluntarily filed by industry members cover 313,064 employees, as of a period in the summer of 1938, when ingot production stood at approximately 36 per cent of capacity. Reference also is made to a Bureau of Labor Statistics survey on July 1, 1937, covering 39,649 common laborers working at entrance rates, the study including between 80 and 85 per cent of the total number of employees in the industry which was then operating at about 90 per cent of capacity. The data voluntarily given covered 26,887 common laborers. Taking into consideration the fact that in the summer of 1938 the industry was operating on reduced production basis, the summary said, "it appears that the figures before the board are rather complete." It was stated also that the coverage as to production capacity and size of producing unit is also adequate.

75,000 or More Affected

There is in the record, it pointed out, evidence as to the rates of pay at 21 out of 48 companies listed as small (less than 300,000 tons capacity). Labor leaders are credited with making the estimate that the proposed recommendations, if adopted, will bring about wage increases for 75,000 to 80,000 workers in the industry. However, as Lee Pressman, SWOC general counsel, pointed out, steel executives at the hearing contended that the raising of common labor rates would force them to make proportionate increases for other workers. This is definitely the accurate picture. The steel rate pay structure is built upon the common labor rate, and it is the conviction of the steel management that if they are compelled to boost common labor rates, proportionate increases will have to be granted to all

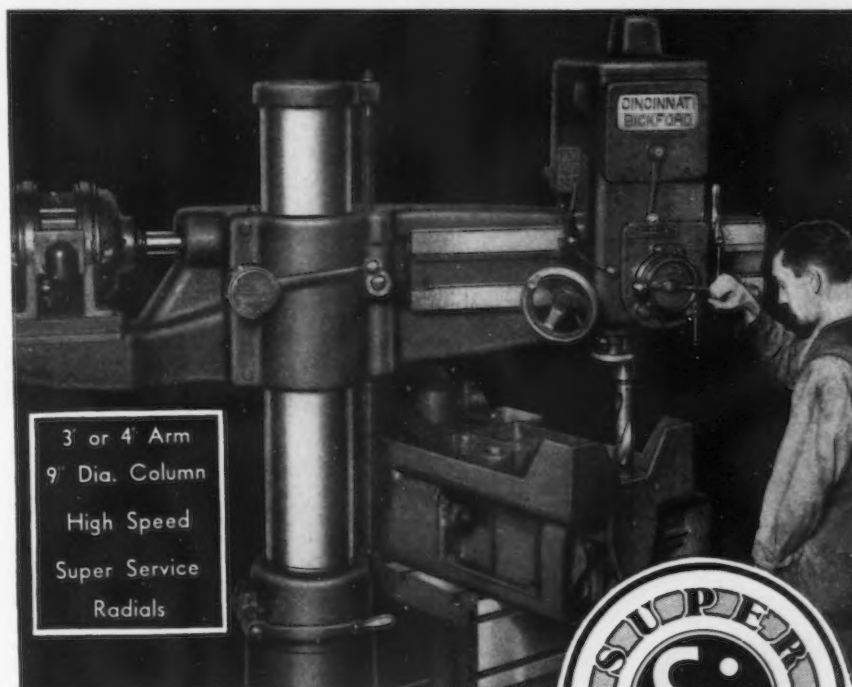
employees, profits or no profits, if Government business is to be taken.

Continuing, the summary said:

"The first concentration of common labor rates in the industry appears at 45c. Seven plants employing 7631 workers pay that minimum and 988 workers are paid at the minimum. Sixteen concerns pay less than 45c. an hr. but they employ only 6038 employees, with 1256 at the base rate. The wage rate in the plants paying less than 45c. is distributed by small

money intervals and varies almost by plant. The next significant wage is 56.5c. Forty-six concerns pay more than 45 and less than 56.5c. per hr., and employ 19,466 wage earners, paying 2782 at the base rate. There is no pronounced concentration at any point within the range. Twenty-one companies employing 38,947 employees, with 3965 at the base rate, pay 56.5c. an hr. 12.4 per cent of all the workers in the wage sample, and 14.7 per cent of all the workers classified in the

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sample as common laborers work in plants paying this minimum.

"The next pronounced concentration of wages is at 62.5c. an hr., although 34 concerns employing 33,699 employees at the base rate, pay between 56.5 and 62.5c. per hr. One hundred one concerns employing 200,466 workers, with 14,669 workers at the base rate, pay 62.5c. These 101 plants employ 64 per cent of all the workers in the wage sample and 54.6 per cent of all the common laborers.

"The largest concentration of workers at 45c. an hr. is found in the Birmingham area, where seven plants employing 7631 employees, with 988 at the base rate, are located. These plants have a capacity of 1,604,000 tons of pig iron, 1,802,000 of ingots, and 1,336,800 tons of finished hot-rolled products and account for the largest part of the production in the South. The plant in the South which employs the largest number of workers pays 36.5c. This plant is within 65 miles of the seven plants referred

to above as paying 45c. an hr., and its total capacity is 180,000 tons of pig iron, 400,500 tons of ingots, and 297,600 tons of finished hot-rolled products. There is no other large concentration of wages throughout the South. There is a low-wage structure existing throughout the South generally, which area may be said to extend from the Atlantic Seaboard westward, including Virginia, Tennessee, and Arkansas on the north, and Oklahoma and Texas as the western limit.

"As has been stated, the pronounced concentration of wages in the North falls to a lesser degree at 56.5c., and to a pronounced degree at 62.5c. The 62.5c. wage is paid by all the companies which for the purposes of convenience have been classed as large, with one exception. The wage is paid by a considerable number of firms which have been classified as medium, and by small-sized companies. The wage of 62.5c. is not exclusively characteristic of any one producing area. In the West there is a range of wages from 55c. to 70c., the rate revealing in this regard similar characteristics to the wage structure in most of the industry in the East. The 62.5c. wage is widely distributed throughout the Eastern area and there is Nation-wide competition between the plants paying this minimum and those which pay a lesser minimum than 62.5c."

May Ultimately Bring South Up to Northern Levels

The recommendation for further study of the effect of prevailing minimum wage found in the South on the competition in the industry for Government business is interpreted to mean it is the plan ultimately to eliminate Southern wage differentials and to bring them up to the Northern levels. Mr. Murray has said that SWOC does not support the position that wage differentials are permanently necessary for a particular industry.

"We merely recognize that certain wage differentials that have been established in an industry over a period of time with some degree of original economic justification must be continued while they are slowly being eliminated through the process of collective bargaining," Mr. Murray told the board at the steel wage hearing.

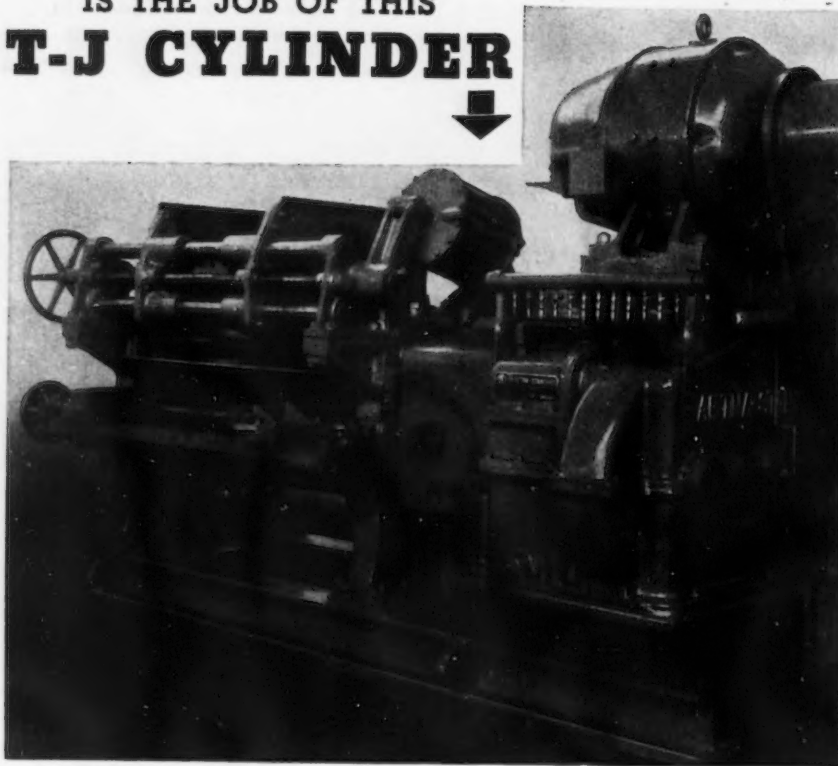
He also made it clear that it is his purpose to ask for a wage determination in the steel fabricating industry.

There is considerable speculation as to the possible effect of fixing wages

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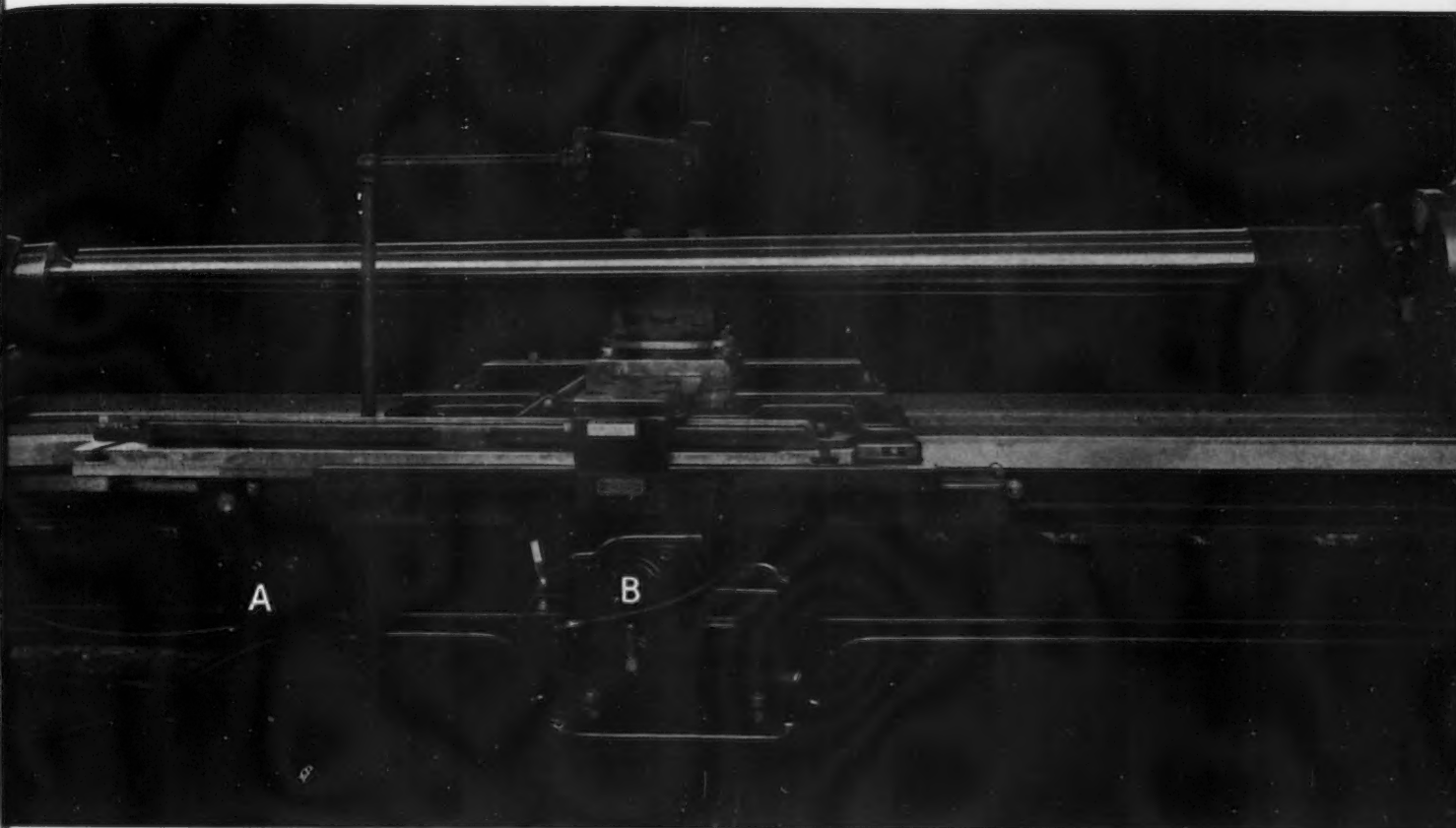
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in the steel industry if they go beyond the present levels. For one thing, different small companies have indicated that they will be compelled to withdraw Governmental business, some of which involves so-called "confidential" products for the War and Navy Departments. It is understood that the War and Navy Departments have manifested concern over the fixing of wages in the steel industry lest it might make it difficult to get requirements, especially so-called "confidential" products, an unusually important circumstance in view of the Administration's pressure to speed up an enlarged national defense program.

That the fixing of wages according to company size was in the mind of the board was emphasized by questions repeatedly asked steel representatives by one of its members, O. R. Strackbein. He inquired if they would give their ideas on the subject. No steel representative recommended such a system. Some were definitely opposed to the suggestion while others insisted that the act provides no authority for determining wages on this basis.

Flood of Protests Expected

Steel companies were given 21 days to "register objection or approval" before any final decision is made on the findings and recommendations by Miss Perkins. It is expected that there will be a flood of briefs protesting against the proposed wage determination. Legal proceedings, if necessary, are said to be under contemplation by some companies.

There was considerable discussion centering around the manner and time of giving out the board's summary. The Government closes down at 1 p.m. on Saturday and seldom issues reports after that hour on that day. The wage report was given out at about 2:30 on Saturday, and the impression was gained by some correspondents of daily papers that decision to make the report public was arrived at hastily. And the suspicion was that it was done as a pre-election gesture, intended to let workers know that the Administration was not only going to protect but to increase their pay, hence the thing to do at the polls on Tuesday was to vote New Deal. At the Department of Labor, however, when this suggestion was made it was received with horror, affected or otherwise.

Complaint is being made also that the board, acting probably at the direction of higher-ups, has not made the full report available to the public not even to steel executives. Denial

of this common right was denounced as being extremely high-handed. But at the Department of Labor it was said that it has pursued the same policy with respect to other reports of the Public Contracts Board. It was stated that the summary accurately covers all recommendations and findings. The steel report, it was said, the largest ever prepared by the board, and consisting of some 250 pages, could not be mailed out. The usual Washington cry of no funds—made by every Government bureau as soon as it is set up, no matter how heavily endowed with taxpayers' money—was raised.

U. S. to Reopen Armor Plate Plant At Charlestown, W. Va.

WASHINGTON.—In making it known that the Administration's far-reaching national defense program includes plans for reopening the Government's armor plate plant at Charlestown, W. Va., the President indicated that it would be used for some undisclosed purpose, apparently not for the manufacture of armor plate. Its reopening, however, will call for a great deal of reconditioning if the plant is to be put to any wide activity for it has lain idle 16 years. It never made any armor, despite the fact that it was built and equipped to make armor plate and projectiles. It was closed down entirely in 1922 under the Harding Administration as the result of the naval disarmament agreement.

It is believed that considerable of the present equipment is obsolete and in such a state of disrepair that if it is to be used for forging operations large replacements will be necessary. The plant has heavy machine tool, gun forging and armor plate equipment. Building and equipping the plant involved an outlay of \$22,000,000.

Not to Be Used to Check Prices

The President, making the announcement from Hyde Park, also said the New Orleans Navy Yard—really only a naval station—will be reopened. It has been idle since 1921.

The President was quoted by the Associated Press as saying the Charlestown plant was not to be used as a yardstick to check private concerns' prices on armor plate, because it was easy for the Government to determine whether such prices were fair.

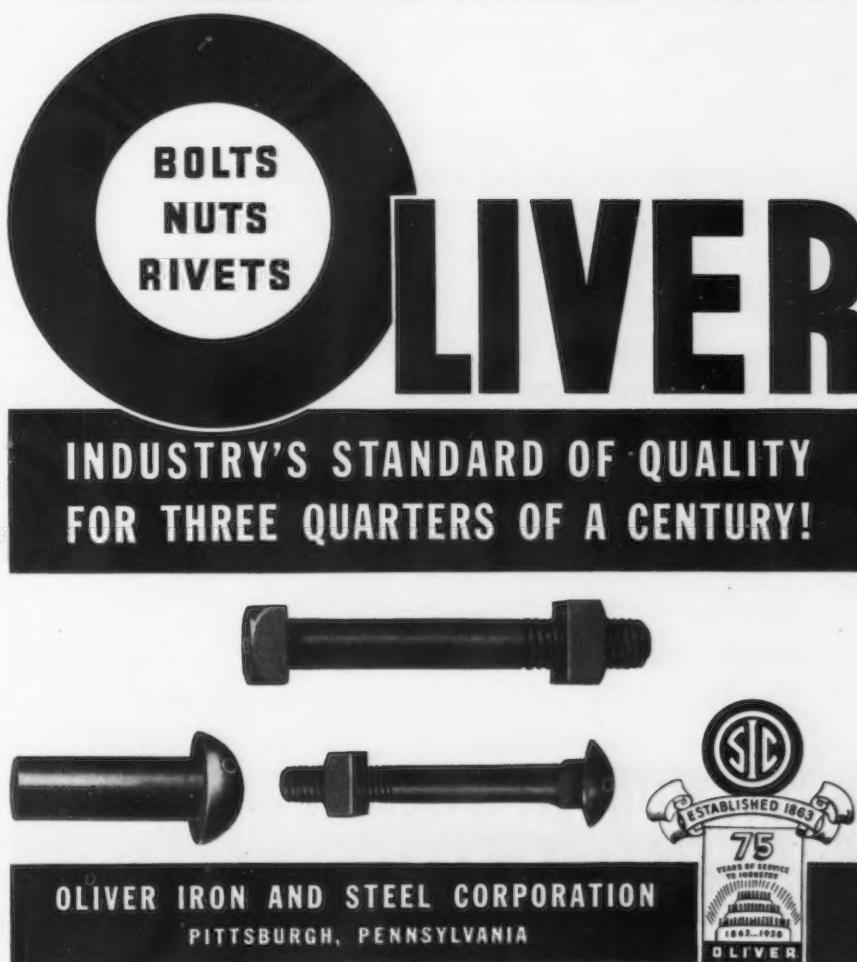


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44-hr. Work Period Limited to Week, Administrator Rules

WASHINGTON. — Employers subject to the wages and hour law will not be permitted to work their employees an average of 44 hr. a week over a two-week period, under a ruling made by the legal division of the Wage-Hour Division of the Department of Labor.

In response to a particular query as to whether it would be possible to base the weekly limit of 44 hr. upon a two-week period making a total of 88 hr., A. L. Fletcher, assistant administrator, replied:

"May I call your attention to Section 7 (a) of the Fair Labor Stand-

ards Act relating to the limitation of hours and the provision for payment of overtime. Throughout this section, the specific expression 'a work week' is used in each case where weekly hours are involved.

"I have submitted your inquiry to our legal division and am advised that there is no authority granted the Administrator under this section to place any construction upon it other than the 44-hr. period is to be restricted to one week. In view of this opinion, therefore, I must advise you that the adjustment of the schedule you have suggested would not be possible under the law."

Working for 2 Employers

Another question as to whether there is any restriction placed on employees who work the maximum number of hours permitted a week and then work for another employer additional hours has been answered by the legal division in the negative. Said General Counsel Calvert Magruder in reply:

"... This act places no prohibition on such employment, so long as the work performed in excess of 44 hr. per week is performed for an employer completely disassociated from the employer for whom the first 44 hr. of work are performed."

"I call your attention to Section 3 (d) of the act, which defines the word 'employer' to include 'any person acting directly or indirectly in the interest of an employer in relation to an employee.' It is, therefore, not unlikely that a prearrangement between two or more employers for the interchange of employees in an effort to circumvent the overtime provisions of the act would be challenged as a violation of the law."

Companies coming under the law and seeking clarification of possible exemptions for handicapped workers have been advised that the Administrator has no authority to exempt workers who are merely slow or inefficient from the minimum wage provisions. The law defines a handicapped worker as one "whose earning capacity is impaired by age or physical or mental deficiency or injury."

Truck Drivers' Rates

Firms operating their own trucks will be required to pay their drivers not less than the minimum wage if the goods carried in the trucks ultimately leave the state of manufacture, under another ruling made by Magruder. On the applicability of the maximum hour provision, it has been ac-

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The greater bulk of our sales is to old customers . . . who buy additional Baker Trucks because Bakers have proven, in their plants, the savings they can make.

Baker representatives are experienced material handling engineers. They spin no fairy tales. They are able and willing to analyze, thoroughly, a material handling job and then give you the facts. If, and only if, those facts point to a Baker, will you be told so.



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cepted for months that private motor carriers operating in interstate commerce would come under the jurisdiction of the ICC's Motor Carrier Bureau if and when the Bureau laid down maximum hours of service under its safety regulations.

While the Wage and Hour Division has inferred that it would like to claim jurisdiction over drivers not covered by the ICC, it has announced that clarification as to its exact coverage is impossible pending the time the ICC determines the extent of the Motor Carrier Bureau's jurisdiction over private carriers. A hearing on this subject has been called by the ICC for early in January.

Powdered Coal Furnaces Uses Lightweight Firebrick

(CONCLUDED FROM PAGE 39)

have increased production schedules. Furthermore, the fuel cost has shown a sharp drop. The following operating figures are the averages over a year: 55 furnace loads annealed; total weight annealed, 3,522,717 lb.; total weight of coal consumed, 422,506 lb.; average weight per furnace load, 64,050 lb.; average weight of coal consumed per furnace, 8,045 lb.; pounds of coal consumed per ton of castings annealed, 251 lb.; present cost of coal per net ton, delivered, \$2.33; and fuel cost per net ton of good hard iron castings annealed, \$0.292.

Government Buying Week Ended Oct. 29

WASHINGTON. — Government purchases of iron and steel products under the Walsh-Healey Public Contracts Act during the week ended Oct. 29, 1938, were valued at \$230,432. Purchases of transportation equipment were valued at \$11,812,111, while contracts of machinery amounted to \$326,994.

Details of items in these and related groups are shown in an accompanying table.

IRON, STEEL AND THEIR PRODUCTS:

Montana Culvert & Pipe Co., Missoula, Mont., CCC, Agriculture, pipe	\$11,456.47
United States Pipe & Foundry Co., Los Angeles, Navy Purchasing Office, pipe and bends	22,242.50
United States Pipe & Foundry Co., Philadelphia, Panama Canal, water pipe	34,131.15

The Timken Roller Bearing Co., Steel & Tube Division, Canton, Ohio, War, Ordnance, steel ...	15,626.19
Taylor-Davis, Inc., Philadelphia, Navy Purchasing Office, reinforcing steel	11,101.60
Titusville Iron Works Co., New York, WPA, Treas., Proc., boilers	35,560.00
Majestic Mfg. Co., St. Louis, War, QMC, gas ranges	15,831.00
The Phoenix Bridge Co., Phoenixville, Pa., WPA, Treas., Proc., angle curbing	15,366.00
Belmont Iron Works, Philadelphia, Navy Purchasing Office, structural steel	28,485.00
International Steel Co., Evansville, Ind., TVA, steel buildings Newport, Ky.; Chicago; St. Louis	28,133.00
Brunner & Lay, Chicago, WPA, Treas., Proc., frost wedges ...	12,500.00

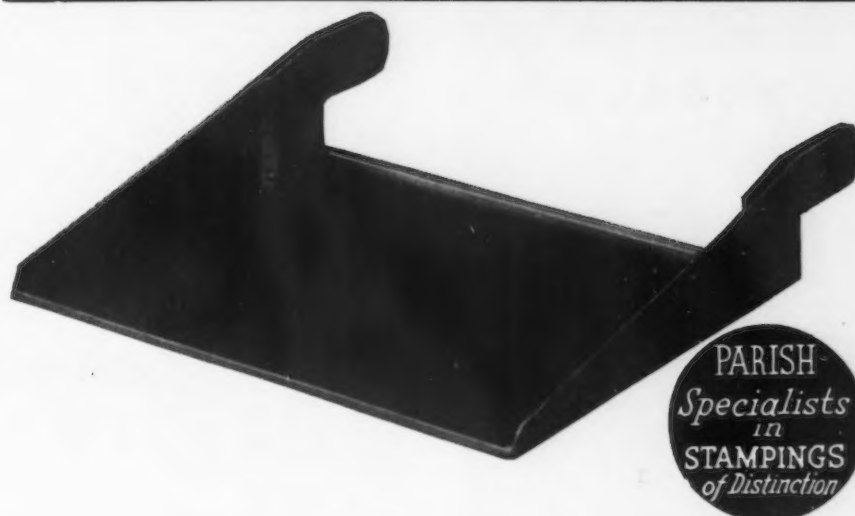
NONFERROUS METALS & ALLOYS:

Revere Copper & Brass Inc., Rome Mfg. Co. Division, Rome, N. Y., War, Ordnance, brass forgings.	39,500.00
---	-----------

MACHINERY:

Gisholt Machine Co., Madison, Wis., Navy, S&A, lathes	21,562.70
E. L. Essley Machinery Co., Chicago, War, Ordnance, press ...	21,250.00
Wiedemann Machine Co., Philadelphia	
Cincinnati Milling Machine & Cincinnati Grinders, Inc., Cincinnati, Navy, S&A, milling machines	49,526.75
The Baumgarten Co. of Washington, Washington, D. C., Treas., Proc., office equipment	Indefinite
American Checkwriter Co., Washington, D. C., Treas., Proc., check-writing mach.	Indefinite

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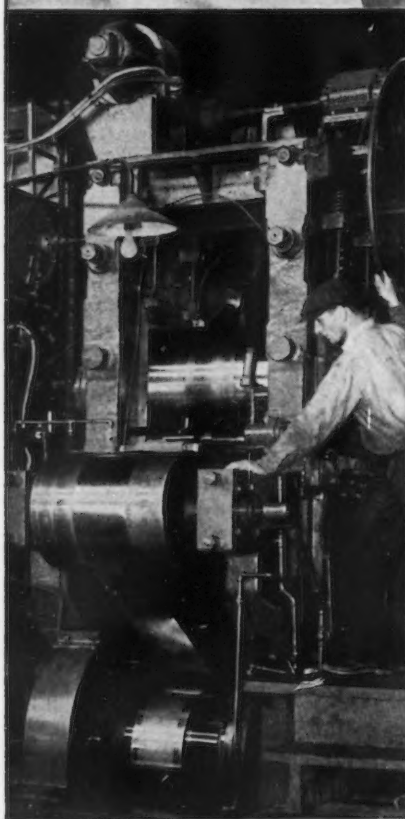
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DeLaval Steam Turbine Co., Trenton, N. J., Navy, S&A, pumps.	81,858.34
Caterpillar Tractor Co., Peoria, Ill., Agriculture, tractors	21,549.00
Lippman Engineering Works, Milwaukee, Interior, rock crusher.	13,895.00
Struthers Wells-Titusville Corp., Titusville, Pa., Navy, S&A, capstans	16,314.00
Foster Engineering Co., Newark, N. J., Navy, S&A, valves	45,819.00
Philadelphia Gear Works, Philadelphia, War, Engineers, reduction gear	13,500.00
International Filter Co., Chicago, Justice, filter plant equip.	41,720.00

ELECTRICAL APPARATUS & SUPPLIES:

Thomas A. Edison, Inc., Primary Battery Division, Orange, N. J., Commerce, primary cells, renewals and parts	11,834.44
Philco Radio & Television Corp., Philadelphia, Treasures, storage batteries	17,361.00
Westinghouse Electric & Manufacturing Co., Washington, D. C., Panama Canal, circuit breakers	23,429.00
Picker X-Ray Corp., New York, Interior, therapy tube stand and high tension generator	11,070.00

TRANSPORTATION EQUIPMENT:

Switlik Parachute & Equipment Co., Trenton, N. J., Navy, S&A, parachutes	16,650.00
Consolidated Aircraft Corp., San Diego, Cal., Navy, S&A, airplane parts	11,445.62
Eclipse Aviation, Division of Bendix Aviation Corp., East Orange, N. J., Navy, S&A, aircraft starters	12,747.00
Curtiss-Wright Corp., Curtiss Propeller Div., Clifton, N. J., Navy, S&A, prop. power units	31,250.00
Parker Appliance Co., Cleveland, War, Air Corps, fittings	10,902.79
Bethlehem Shipbuilding Corp., New York, Navy, Ordnance, construction of fleet tug	1,226,000.00
Bethlehem Shipbuilding Corp., New York, Navy, Ordnance, construction of fleet tug	1,226,000.00

Electric Boat Co., Groton, Conn., Navy, Ordnance, construction of submarine	3,067,000.00
Electric Boat Co., Groton, Conn., Navy, Ordnance, construction of submarine	3,067,000.00
Electric Boat Co., Groton, Conn., Navy, Ordnance, construction of submarine	3,067,000.00
General Motors Corp. (Chevrolet Division), Detroit, Navy, S&A, automobiles	20,992.41
General Motors Corp. (Chevrolet Division), Flint, Mich.	
General Motors Corp. (Chevrolet Division), Detroit, Agriculture, trucks	28,453.80
George Cole Motor Co., Nashville, Tenn., Farm Security Adm., trucks	26,670.00

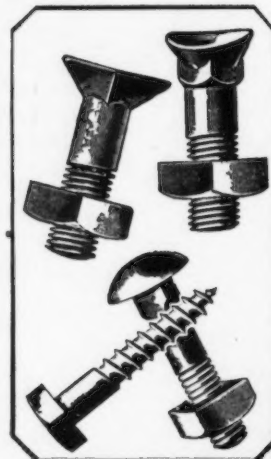
An Iron and Steel History Of Portsmouth, Ohio

"THE History of Iron and Steel in Scioto County," (the county in which Portsmouth, Ohio, is situated) is the title of an interesting book that has been written by Frank H. Rowe, who is supervisor of safety and personnel relations for the Wheeling Steel Corp. The development of the iron industry in Ohio began about 1804. During the 134 years between that time and the present 223 blast furnaces have been built in Ohio. The book has been published by the Ohio State Archaeological Society, Columbus, Ohio.

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NLRB Rules Against Tidewater Iron & Steel

WASHINGTON.—The NLRB has directed the Tidewater Iron & Steel Co., of Passaic, N. J., to reinstate with back pay three workers allegedly discharged for union activities. The board at the same time dismissed a complaint filed by AFL's hod carriers' and common laborers' union that the company allegedly had discharged three other employees.

Shoe Union Members Appeal to High Court

WASHINGTON.—The Supreme Court has been asked by eight men and one woman, members of the United Shoe Workers, a CIO affiliate, to pass upon the constitutionality of the Maine law under which they were convicted of criminal conspiracy by the Maine Superior Court in connection with strikes last winter at shoe factories in Auburn and Lewiston. The union members charge that the law violates the right to strike and

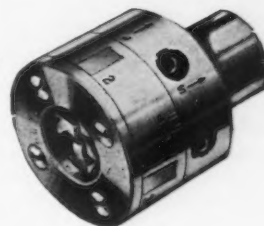
deprived them of their liberty without due process of law.

The law, which is held to be vague and arbitrary because it does not "appraise a defendant exactly of what he was charged with," makes it conspiracy for "two or more persons to agree together, with fraudulent or malicious intent, wrongfully and wickedly to injure the person or property of another."

U. S. to Fix Metal Furniture Pay Rates

WASHINGTON.—The Public Contracts Board has called a hearing for Nov. 17 as the first step toward fixing minimum wage rates for the metal furniture manufacturing industry under the Walsh-Healey law, which permits the Secretary of Labor to prescribe labor standards for firms doing Government business. The board will solicit information on prevailing wage rates in the industry at the hearing and on the data supplied by industry members will base its recommendations for minimum wages.

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SPRINGFIELD and WORCESTER, MASSACHUSETTS

... THE NEWS IN BRIEF ...

Steel ingot output in October 17 per cent above that of September . . . Industry operated at 52.45 per cent.—Page 43.

A recapitulation of third quarter statements of leading steel companies.—Page 49.

Steel industry has 60 per cent fewer blast furnaces than 50 years ago but existing stacks have 300 per cent greater capacity.—Page 55A.

October pig iron daily output up 18.2 per cent.—Page 55D.

Silver lining for barrels, cans and other shipping containers is studied by the U. S. Bureau of Research.—Page 55D.

Automobile industry covering its requirements farther ahead as production of cars gains for seventh consecutive week.—Page 56.

Edison Storage Battery Division of Thomas A. Edison, Inc., releases a material handling film, "Giants at Work."—Page 59.

A book on "Combustion, Flames and Explosions of Gases," by B. Lewis and G. von Elbe, is published by MacMillan Co., New York.—Page 59.

"Dynamite Squad" at Republic plant directed by Communist, says witness.—Page 59.

Flood of protests expected against Public Contracts Board decision affecting steel plant wages—62½c. minimum set for 36 northern states and 45c. for 12 southern states.—Page 60.

Government armor plate plant at Charlestown, W. Va., to be reopened.—Page 67.

Wage-Hour division of the Department of Labor rules employers can't work their employees an average of 44 hr. weekly over a two-week period.—Page 68.

Federal Government purchases of iron and steel products in latest reported week total \$230,432, machinery contracts, \$326,994.—Page 69.

An iron and steel history of Portsmouth, Ohio.—Page 70.

NLRB rules against Tidewater Iron & Steel Co., orders reinstatement of workers allegedly dismissed for union activities.—Page 71.

Eight men and one woman, members of the United Shoe Workers, a CIO affiliate, ask Supreme Court to decide on constitutionality of Maine labor law.—Page 71.

Thompson Wire Co., Boston, opens a new plant built by Austin Co., Cleveland, in a Chicago suburb.—Page 76.

Colorado Fuel & Iron Corp. reports third quarter loss of \$143,752 against profit of \$442,080 in the like period of 1937.—Page 76.

Republic Steel Corp. ships 10,000 tons of New York state iron ore by barge to its Buffalo plant.—Page 76.

Monopoly Committee prepares a questionnaire to quiz nation's steel manufacturers on prices, capacity, production and shipments.—Page 77.

SECTIONS INDEX

Personals	75
Obituary	76
Steel Ingot Production	81
Summary of the Week	82
Comparison of Prices	83
Pittsburgh, Chicago, Cleveland, Philadelphia and New York Market	84
Fabricated Steel	88
Non-ferrous Market	89
Scrap Market and Prices	90-91
Finished Iron & Steel	92-93
Pig Iron & Raw Material Prices	94
Warehouse Prices	95
Machine Tool Activity	96
Plant Expansion & Equipment	98

MEETINGS

Nov. 14—Society of Automotive Engineers, annual dinner, New York.
Nov. 16 and 17—Purchasing Agents' Association, Chicago.
Nov. 16 and 17—Porcelain Enamel Institute, Cleveland.
Nov. 25 and 26—American Foundrymen's Association, Purdue University, Lafayette, Ind.
Dec. 5 to 9—American Society of Mechanical Engineers, New York.
Dec. 5 to 10—National Exposition of Power and Mechanical Engineering, New York.
Dec. 15—Grinding Wheel Manufacturing Association, Atlantic City, N. J.
Dec. 16—Abrasive Grain Association, Atlantic City, N. J.
Jan. 10 to 12—Institute of Scrap Iron and Steel, St. Louis.
Jan. 9 to 13—Society of Automotive Engineers, Detroit.

CIO affiliate loses election, but wins through Labor Board offer that Yale & Towne Mfg. Co. employees vote over again.—Page 78.

Activity in the durable goods industries rose 5 per cent in September, the Department of Labor reports.—Page 78.

Hourly wages of steel workers have risen to 27 per cent above the average rate in all manufacturing industries in the U. S.—Page 79.

Aetna-Standard Engineering Co., Youngstown, acquires Griffiths-Bowman Engineering Co., Massillon.—Page 79.

Owens-Corning Fibergas Corp., with headquarters in Toledo, Ohio, is organized by Owens-Illinois Glass Co. and Corning Glass Works.—Page 79.

Engineers' Society of Milwaukee meet for symposium of protective coverings of metal.—Page 80.

Wiley's Carbide Tool Co. obtains patent relating to method of forming hard compact metals suitable for tools.—Page 80.

Drop Forging Association, Cleveland, publishes chart showing all known forging trade marks.—Page 80

THE IRON AGE capital goods index, measuring activity in production and distribution of capital goods, reaches 12 months high.—Page 80.

Armco opens new coke ovens at Hamilton.—Page 80A.

Du Pont Co.'s chemical division develops new high speed process for plating of copper.—Page 80A.


A booklet describing specification of regulators and matters for bottled gas issued by Reliance Regulator Corp.—Page 80A.

Entire November output of 1939 models of Willys-Overland Motors, Inc., has been sold, according to company officials.—Page 80A.

SWOC lodge leaders warn J. & L. employees that "necessary measures" will be taken to get the closed shop; dues collectors bar hundreds from jobs at Aliquippa.—Page 80B.

Navy Department at Washington to open bids Nov. 22 on 3026 tons of plates for three submarines.—Page 96.

Navy to spend \$4,050,000 in seven months for machine tools.—Page 96.



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Lasting performance is the number one requirement on tough power drives. For these jobs call for precision and strength to carry the load evenly, positively, dependably . . . Whitney chains have these qualifications. And that's why Whitney chains are known throughout industry for their *ability to take it*. Bring your chain problems to Whitney. It costs no more to buy Whitney performance.

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... PERSONALS ...

H. C. PEARSON has been appointed assistant manager of sales for American Steel & Wire Co. in the New England district, located in Boston. Mr. Pearson started work for the wire company in 1904 and since 1925 has been a salesman in the manufacturers' department.

♦ ♦ ♦

A. M. MARSH assumes the post of assistant manager in the merchant

products department in the Chicago office of American Steel & Wire Co. He joined the company as a salesman in 1934. H. A. HAMILTON will also continue as assistant manager in the merchant products department at Chicago, which position he has held since 1920.

♦ ♦ ♦

WILLIAM H. BOYLE has been appointed superintendent of rolling, in charge of bloom, billet and bar mills, Carnegie-Illinois Steel Corp.'s Du-

quesne, Pa., works. He formerly was superintendent of blooming mills.

ALEX MONTGOMERY, JR., formerly plant industrial engineer, has been appointed assistant to superintendent of rolling, in charge of bar mills.

GEORGE L. GALLATIN, formerly superintendent of bar mills, has been appointed chief clerk, order and schedule.

JOSEPH W. KENNEDY, JR., formerly special engineer, has been appointed assistant to superintendent of rolling in charge of blooming mill.

JOHN W. JORDAN, formerly industrial engineer, has been appointed plant industrial engineer.

♦ ♦ ♦

CLIFFORD S. STILWELL, vice-president Warner & Swasey Co., Cleveland, sailed for England, Oct. 28, and plans to remain until the middle of December.

♦ ♦ ♦

W. O. BATES, JR., consulting mechanical engineer, San Francisco, has joined the Caterpillar Tractor Co., Peoria, Ill., as manager of its patent department. He is a graduate of Cornell University and was for a time an executive of the Bates Machine & Tractor Co., Joliet, Ill., later a part of the Foote Brothers Gear & Machine Co.

♦ ♦ ♦

THOMAS W. KENNEDY, president and general manager of the Mystic Iron Works, has resigned. At the time the newly-built furnace was blown in in September, 1926, Mr. Kennedy was vice-president and general manager, and CAPT. WILLIAM E. McKAY, president. After the furnace had been in operation a month or two Mr. Kennedy was made president.

♦ ♦ ♦

A. DI GIULIO, former research metallurgist for Ford Motor Co., has been appointed assistant professor of metallurgy at the University of Detroit.

♦ ♦ ♦

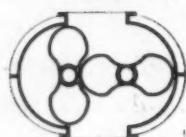
JOHN SCOVILLE, of the Chrysler Corp., will address the 1938 Conference of Statisticians on Business Research at Ohio State University, Nov. 12.

♦ ♦ ♦

E. R. GALVIN, heretofore general sales manager of the Caterpillar Tractor Co., Peoria, Ill., has been appointed to a similar post with the R. G. LeTourneau, Inc., also of Peoria, succeeding DENN M. BURGESS, who has been promoted to the general

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managership of the LeTourneau organization. Mr. Galvin had been identified with the Caterpillar organization since 1927.



WILDER A. CHAPMAN, who has been identified with Skinner & Sherman, Inc., Boston, since 1924, has been appointed manager of laboratories for Robert W. Hunt Co., Chicago. He is a graduate of Tufts College and is a member of a number of technical societies, including the American Society for Metals.



W. A. HART, chief engineer, Colonial Broach Co., Detroit, is scheduled to address two local technical meetings on the subject of broaching. On Nov. 11, he will speak before the Rockford chapter of the American Society of Tool Engineers and on Dec. 12 he will address the American Society for Metals in Peoria, Ill.



REED M. ANDRESS, vice-president and foreign manager of the Barnes Drill Co., Rockford, Ill., is spending two or three months in Europe, where he will visit the company's agents in Great Britain, France, Italy, Switzerland, Sweden, Belgium and Holland. He is expected to return shortly before the holidays.



DR. ROBERT B. SOSMAN, physical chemist at the research laboratory of the United States Steel Corp., Kearny, N. J., has been appointed to membership in its Bartol Research Foundation Committee of the Franklin Institute, Philadelphia.



HARRY W. SYMANSKY, of the Atlantic Steel Corp., Albany, has been reelected president of the Capital District chapter of the Institute of Scrap Iron and Steel. CHARLES BUFF, of the Albany Scrap Iron Baling Co., has been chosen vice-president. SAM FINKELSTEIN has been reelected secretary and SANFORD LEVIN, treasurer.



DONALD C. LOTT, C. E. LOTT and WILLIAM H. COSGROVE have resigned as officers and directors of Steel & Engineering, Inc., Pittsburgh.



RALPH J. STAYMAN has resigned as manager of warehouse sales for the Jones & Laughlin Steel Corp., Pittsburgh. Mr. Stayman began his warehouse career with Joseph T. Ryerson & Son, Inc., Chicago. He left that company to become manager of the Chicago office and warehouse of Jones & Laughlin. Under his direction the

Chicago warehouse was moved to present location. Later Mr. Stayman was transferred to Pittsburgh and there directed further expansion of the warehouse service. As general manager of warehouses he initiated and developed steel warehouses at Long Island City, New York, Cincinnati, Detroit, Memphis, and New Orleans. He also served as sales manager of the company's merchandising of products sold to the construction industries. This activity embraced the fabricated struc-

tural steel output of the Keystone works at Pittsburgh, and sheet steel piling. Mr. Stayman has long been a leader in the steel warehouse industry. Since its reorganization four years ago he has been a member of the executive committee of the American Steel Warehouse Association and has served that organization as president and treasurer. He is a director of the American Institute of Steel Construction. Mr. Stayman has made no announcement of his plans for the future.

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SEPARATION HEADQUARTERS SINCE 1899

... OBITUARY ...

JOHN B. DOWNES, formerly superintendent of the rail and blooming mills of the Pennsylvania Steel Co., now the Steelton plant of the Bethlehem Steel Corp., died at his home in Steelton, Pa., on Oct. 9, aged 89 years. He had been retired since 1913.

♦ ♦ ♦

JOHN D. JOYNT died suddenly, Nov. 1, in his commercial body building shop, the R. Joynt Sons Co., Detroit. Mr. Joynt was born in Detroit in 1888.

♦ ♦ ♦

H. C. ROOD, for over 15 years Eastern sales manager of the Northern Engineering Works, Detroit, died at

his home in Pelham Manor, N. Y., on Oct. 27 after a short illness. He had been identified with the company in various capacities for over 20 years.

♦ ♦ ♦

E. HASTON JONES who, until a year and a half ago, was president of Kanawha Mfg. Co., maker of coal mining equipment, Charleston, W. Va., died recently at Lititz, Pa.

September Tin Output Totaled 10,100 Tons

TIN production in September, as estimated by the International Tin Research and Development Council, amounted to 10,100 tons, or 700 tons below the August total and 9300 tons under the September, 1937, figure.

Republic Ships Ore Through Barge Canal

CLEVELAND.—The resumption of production some weeks ago at the Witherbee-Sherman iron ore mines in New York state has been followed by the recent shipment of about 10,000 tons by barge canal to the Republic Steel Corp. plant in Buffalo. While this is the last such large shipment to be attempted this year, delivery by rail continues.

Officials of the Republic corporation indicated they were well satisfied with the handling of the ore by barge and may attempt to extend shipments into Cleveland next season, although considerable depends upon whether the Cuyahoga River at Cleveland is satisfactorily improved. With Government assistance, a river straightening program is being pushed actively at Cleveland.

Thompson Wire Opens Chicago Area Plant

THOMPSON WIRE CO., 41 Mildred Avenue, Boston, manufacturer of cold rolled strip steel and round and flat wire, has begun production at a plant built by the Austin Co., Cleveland, at Franklin Park, Ill., a suburb of Chicago.

The Thompson company, W. B. Durkee, vice-president, says, plans shortly to complete installation of equipment for hot tinning, lead coating, and cadmium plating of strip steel.

Bertram Bredy has been appointed general manager of its Chicago division. The Chicago office is now located at 9470 King Street, Franklin Park. Other Thompson plants are at Boston and Worcester, Mass.

1937 Cast Iron Pipe Output Advances

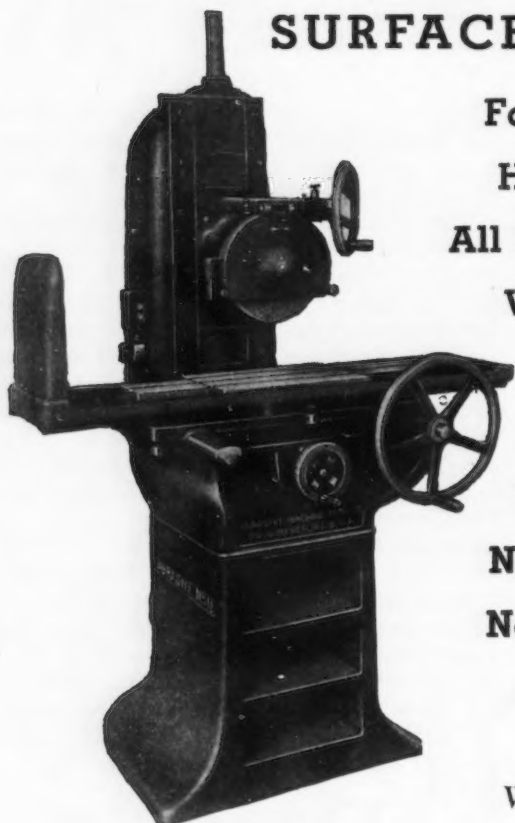
WASHINGTON.—Making a gain of 61.4 per cent, the production of cast iron pipe and fittings in 1937 was valued at \$61,118,463, compared with \$37,870,081 in 1935, according to the Bureau of the Census.

Colorado Fuel Quarter Deficit Is \$143,752

COLORADO FUEL & IRON CO. reports for the quarter ended Sept. 30, 1938, a net loss of \$143,752 after all charges, compared with a net profit of \$442,080 in the corresponding period of 1937.

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Monopoly Committee Prepares Steel Industry Questionnaire

WASHINGTON.—Preparatory to an exhaustive scrutiny by the Temporary National Economic Committee of the iron and steel industry a joint questionnaire has been tentatively drafted by the Department of Justice and the Federal Trade Commission. The questionnaire, centering around capacity, production, shipments and prices will be designed to develop the most searching analysis of the economic operation of the industry ever made, reaching, as it will, into all of the multifold ramifications of the industry.

The questionnaire, which, it was stated, it is hoped to send out "very soon" will not be whipped into final shape until responses have been received from letters sent out to a majority of members of the industry asking for information with respect to the way manufacturers keep their records. The objective is to simplify the questionnaire and make it as uniform in order that the industry will be burdened as little as possible in going through records and supplying the required data. The questionnaire, said to be the second one to be prepared by the Government in connection with the forthcoming anti-monopoly inquiry, will be sent out by the TNEC to the entire industry. While the procedural plans of the committee call broadly for "topical" hearings—inquiry into various subjects, rather than industry-by-industry investigation—economic factors which apply to the steel industry will be given early study.

Meeting is Held

The foundation for preparing the questionnaire was laid at an informal meeting in New York on Wednesday of last week which representatives of the Department of Justice and the Federal Trade Commission held with members of the steel industry who were asked for and given technical advice on preparation of the questionnaire. A. H. Feller, in charge of the steel study for the economic unit of the Department of Justice, told THE IRON AGE that the information supplied by the steel representatives was "extremely helpful." He said that if the information desired is developed it will be of great mutual benefit to the Government, the steel industry and its consuming sources.

It is proposed to have steel company records broken down in order to get

as complete a picture as possible of the industry as a whole. The cardinal subjects to be treated are so broad that it is hoped by subdividing them the entire structure, operations and policies of the industry can be analyzed. One preliminary problem will be to get a definition of the term "capacity." It is sought for example not merely to get figures on ingot and finishing capacity but also to find out their relationship, where, for instance, raw steel capacity is more or less than rolling capacity. Moreover finishing capacity as it pertains to different products

which can be rolled on a common mill, applicable particularly to flat-rolled material, will be determined so far as is possible, together with the ratio of actual production of the various lines.

Basing Point An Issue

Reports on shipments are designed to throw additional light on the knotty problem of distribution by products to consuming industries and the economic position of supplying and consuming sources in the movements of the different kinds of tonnages. The study of prices will inevitably include the industry's basing point policy of quotation, though its importance has been diminished by reason of the recent far-reaching change in pricing by which differentials over Pittsburgh have been



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either entirely abolished or have almost disappeared. It is likely that the effect on this shift in pricing also will be studied.

Although the FTC has consistently held out for elimination of the delivered price system and substitution of an f.o.b. mill price system, the prevailing view in Government sources, including some which have been unfriendly to the steel industry, seems to be that the delivered price method of quoting prices should not be abruptly

uprooted. The point has been made that sudden destruction of this long-established system would be disastrous not only to the steel industry but also to consuming industries built up around it.

Further, there is a growing realization that the system, with the growth of the industry, has evolved from a single basing point to a multiple basing point basis, and that the elimination or near-elimination of Pittsburgh differentials has gone far to minimize

whatever importance the issue was given.

Indeed, there appears to be some quiet concern lest the smaller companies suffer under the changed pricing policy to a point where their existence may be endangered. In this connection there is interest manifested in Washington as to whether, as a means of survival, this situation will not bring about consolidation of smaller units in the industry.

While an attempt will be made to prepare the questionnaire so that preparation of responsive data will largely entail clerical work, some information sought will not be of a current character. In this instance it will be necessary to resort to original sources. Material of this kind, however, will be restricted to a selected number of products covering "sampling" periods, and probably will be asked of only a section of the industry.

CIO Loses Election, Wins by NLRB Ruling

WASHINGTON.—The National Labor Relations Board has dismissed a petition filed by the Walker-Automatic Independent Labor Association on behalf of employees of the Walker Vehicle Co., and the Automatic Transportation Co., divisions of the Yale & Towne Mfg. Co., Chicago. The association asked that it be designated the exclusive collective bargaining agency for employees on the basis of an election held July 1, when it polled 123 votes, as against 116 for the CIO's Amalgamated Association of Iron, Steel and Tin Workers. In dismissing the petition, the board said that neither of the rival organizations won a majority, but that the association could request a run-off election.

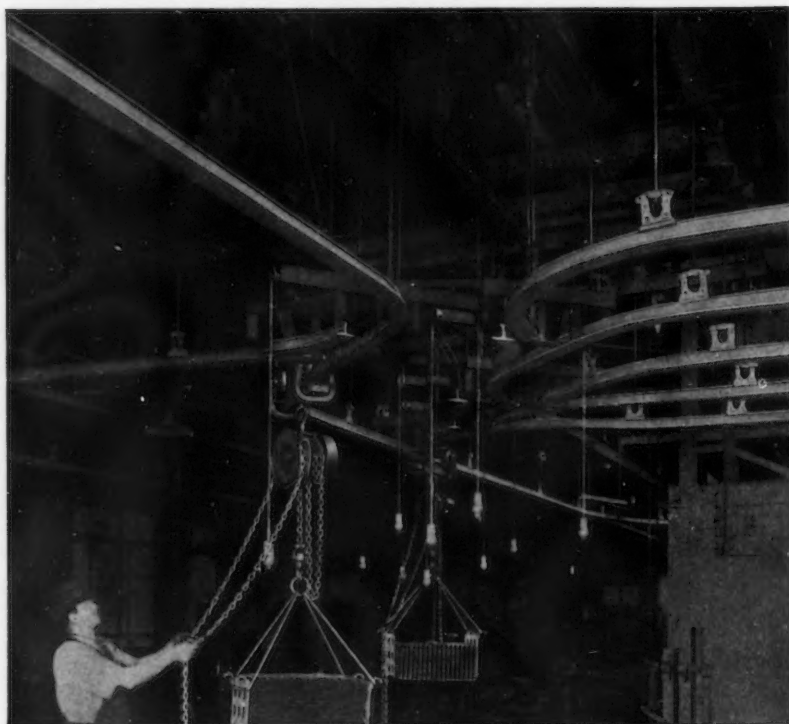
Durable Goods Show Gain in Employment

WASHINGTON.—The Department of Labor reported last week that employment in the durable goods industries during September increased 5 per cent over the August figures, with steel mills recording a 1 per cent increase in employment and a 4 per cent increase in payrolls. In the automobile industry, the department said, employment was up 33 per cent and payrolls 37 per cent. Employment in the machine tool industry in September increased 7 per cent over August and payrolls rose 11 per cent.



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Steel Wages 27% Above U. S. Average

HOURLY earnings of wage-earning employees in the steel industry during the past two years have risen to 27 per cent above the average wage in all manufacturing industries, the greatest spread on record. From 1890 through 1936 steel wages were 9 per cent above the average, according to data compiled by the American Iron and Steel Institute.

Steel employees have earned an average of over 82c. per hr. in the past two years, which compares with average earnings of a little less than 65c. per hr. for workers in all manufacturing industries during that period.

Over the 25-year period, 1890 through 1915, steel workers earned about 24.5c. per hr., or 4 per cent above wages in all manufacturing industries, which averaged 23.5c. per hr. over those years.

From 1916 through 1919 when steel operations were pushed nearly to capacity, wage earners in the steel industry were paid about 51.5c. per hr., or 24 per cent above the average industrial wage for those years of 41.5c. per hr.

Over the period 1920 through 1930, wage earners in the steel industry received about 62.5c. per hr., or 11 per cent above the average of 56.5c. paid in all manufacturing industries in that period.

In the four years, 1931-1934, during each of which the steel industry as a whole operated at a loss, steel workers earned approximately 12 per cent more per hr. than the figure for all manufacturing industries. Steel wages averaged 58c. per hour in that period, as against 52c. for all manufacturing industries.

Steel employees' wages rose to about 67c. per hr. during 1935 and 1936, or about 18 per cent more than the average of 57c. per hr. earned by employees of all manufacturing industries during those two years.

Fiberglas Corp. Formed By 2 Glass Companies

TOLEDO.—Owens-Corning Fiberglass Corp., a newly created company, will have headquarters in Toledo, and plants in Newark, Ohio, and Corning, N. Y. The company has been formed by Owens-Illinois Glass

Co. and Corning Glass Works, to put into many new fields of application recent developments in glass fiber and glass textile, in the last three years. One application has been insulation for electric motors.

Harold G. Boeschstein, former vice-president and general manager of Owens-Illinois Glass Co., becomes president of the new company, and Amory Houghton, president of Corning, will be chairman of the board of directors.

Aetna-Standard Buys Griffiths-Bowman

THE Aetna-Standard Engineering Co. of Youngstown has taken over the Griffiths-Bowman Engineering Co. of Massillon, Ohio. Frederick J. Griffiths and K. Bert Bowman, president and vice-president, respectively, of the Griffiths-Bowman Co., have long specialized in the making of alloy steels.



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Capital Goods Index Reaches 12-Month High

ACTIVITY in the production and distribution of capital goods in October, as measured by THE IRON AGE Index (see page 81), averaged 70 per cent of the 1925-27 period on which the index is based. This figure is the highest monthly average in 12 months and marks a continuation of the steady upward movement of the index that has been in progress since the year's low of 44.2 was reached in June. In September the monthly average was 59.7 and in October, 1937, it was 67.8.

The heaviest contributors to the month's increase were the ingot output and automobile production com-

ponents of the index. The steel series advanced from 65.6 in the last week of September to 75.3 in the last week of October.

Milwaukee Engineers Discuss Metal Coverings

ENGINEERS' SOCIETY OF MILWAUKEE, at its monthly meeting on Oct. 19 at the Wisconsin Club, conducted a symposium on protective coverings of metal. R. H. McGuire, consulting engineer, Donald Sales Co., discussed coverings by plating, and S. N. Rhue, assistant divisional director, paint division, Pittsburgh Plate Glass Co., spoke on coverings for metal structures.

Willey's Carbide Tool Obtains U. S. Patent

PATENT has been recently issued to F. H. Willey, president of Willey's Carbide Tool Co., Detroit, which relates to the method of forming hard, compact metals suitable for tools such as cutting, drilling, surfacing tools, drawing dies, molds and other implements required to be formed of a hard metal composition such as in the sixth group of Mendeleeff's Periodic Table, together with the metal of the iron groups.

Forging Association Lists Trade Marks

THE DROP FORGING ASSOCIATION, 605 Hanna Building, Cleveland, has published an 11 x 16 in. chart, suitable for wall hanging, showing all known forging trade marks. Each mark is listed with the name of the company using it and the entire list is arranged in alphabetical order to simplify its use.

New York Foundrymen To Meet at Ithaca

THE Buffalo chapter, American Foundrymen's Association, in cooperation with Cornell University and the Syracuse Foundrymen's Association, announces a two-day foundry meeting to be held at Ithaca, N. Y., Nov. 25-26. Special sessions on sand control, gating and safety will be features at the meeting, which will be opened by S. C. Hollister, dean of engineering, Cornell, and it will be addressed by J. A. Voss, director of industrial relations, Republic Steel Corp.



Model "TL" Gusher Pump
with Polyphase Motor.

NO PRIMING NO PACKING

"Gusher" Coolant Pumps never require priming or packing. This enables you to maintain definite and economical production schedules.

Write today for detailed description of Ruthman "Gushers."

THE RUTHMAN MACHINERY COMPANY
537 EAST FRONT ST., CINCINNATI, OHIO

GUN WELDERS

SWIFT ELECTRIC WELDER CO., 6560 Epworth Blvd., Detroit, Mich., Welding machines hand, hydraulic, cam or air operated of the following types: spot, seam, projection, flash, flue & pipe.





Armco Opens New Coke Ovens At Hamilton

A NEW battery of 15 Koppers Becker low differential "Underjet" ovens was put into operation and first coke was pushed on November 1 at the plant of the Hamilton Coke Iron Division of the American Rolling Mill Co., Hamilton, O. The plant is unique in that all the heat regulating equipment is placed in a basement structure below the ovens; therefore, the name "Underjet" ovens. This innovation facilitates ease of operation and inspection and provides for the comfort of the operators. For the first "push" the executives pictured above headed a group of about 60 industrialists who inspected the plant. Those shown are from left to right: M. A. Brawley, treasurer, The American Rolling Mill Co.; C. L. Kings-

bury, controller. The American Rolling Mill Co.; Harry Holiday, Manager, Butler Division of Armco; D. Eppelsheimer, vice-president of Armco; C. S. Payson, director, The American Rolling Mill Co.; J. A. B. Lovett, manager, Hamilton Coke Iron Div. of Armco; J. S. Ferguson, general superintendent, Hamilton Coke Iron Div. of Armco; Calvin Verity, executive vice-president and manager, The American Rolling Mill Co.; Joseph Becker, vice-president and general manager, Koppers Co.; D. E. Price, contract manager, Tar and Chemical Div. of the Koppers Co.; Fred Denig, vice-president Construction Division, Koppers Co.; Joseph VanAckeren, vice-president, Koppers Co.

wire and rods, the process may be adapted to a current density of 100 to 200 amp. per sq. ft., the heavy current depositing the copper very rapidly.

It is said that the new process can be installed in the usual cyanide plating equipment. High-purity copper anodes are required—they remain bright and clean throughout the operation.

Issue Bottled Gas Bulletin

THE process of specifying meters and regulations for the measurement and control of liquefied petroleum gases is described by Reliance Regulator Corp., Alhambra, Cal., in cooperation with American Meter Co., in a comprehensive new bulletin. Types of applications and working conditions are clearly defined, and complete specifications for the appropriate types and sizes of meters and regulators given in convenient form.

Copper Plated at High Speed by du Pont

A NEW high-speed process for plating with copper, four times as fast as the ordinary cyanide processes, has been announced by the du Pont Co. Differing radically in operation and results from any of the standard accepted practices, it is said that the process achieves its speed because of 100 per cent cathode efficiency, using

high cathode current density. Heavy coatings from 0.001 in. to 0.003 in. can be obtained in from 10 to 20 min., leaving excellent surfaces for direct depositions of bright or dull nickel. The deposits have been shown to be uniformly bright, free from pits, and can be easily buffed.

Coatings up to 0.003 in. have been produced in tests in 2½ hr. Heavy-weight smooth and bright coatings can be obtained in any desired thickness.

For articles such as printing rolls,

November Output Sold For Willys-Overland

TOLEDO.—Entire November production of Willys-Overland Motors, Inc., on the new Willys 1939 model has been sold, according to William L. Cowling, vice-president in charge of sales.

REINFORCING STEEL

**. . . Awards of 6400 tons;
22,200 tons in new projects.**

NORTH ATLANTIC STATES AWARDS

- 1100 Tons, Mount Gretna, Pa., prison, to Sweets Steel Co., Williamsport, Pa.
- 200 Tons, New York, Sheffield Farms building, to Concrete Steel Co., New York.
- 200 Tons, Allendale, N. J., grade crossing elimination, to Truscon Steel Co., Youngstown, Ohio, through Geo. M. Brewster & Son, Bogota, N. J.
- 117 Tons, Allendale, N. J., Erie Railroad grade crossing elimination, to Truscon Steel Co., Youngstown, through Geo. H. Brewster & Sons, Bogota, N. J., contractors.
- 100 Tons, Sharpsville, Pa., sewage disposal plant, to Republic Steel Co., Youngstown, through Patterson-Leitch Co., Cleveland.
- 100 Tons, New York, Treasury Department requirements, to Ceco Steel Products Co., Jersey City, N. J.
- 100 Tons, Westfield, Mass., bridge, to Concrete Steel Co., Boston.

CENTRAL AND WESTERN

- 2200 Tons, Bremerton, Wash., graving dock, reported to Bethlehem Steel Co., Seattle, through General Construction Co., Seattle, contractor.
- 1200 Tons, San Diego, Cal., Marine Corps barracks, to Fenton Materials Co., San Diego, through M. H. Golden, San Diego, contractor.
- 350 Tons, San Diego, Cal., Navy mess hall-galley-barracks, to Blue Diamond Corp., Los Angeles, through B. O. Larsen, San Diego, contractor.
- 190 Tons, Detroit, Boys Club, to McRae Steel Co., Detroit.
- 170 Tons, Coldwater, Mich., Children's Village building, to Calumet Steel Co., Chicago.
- 145 Tons, Coalinga, Cal., Sunset Grammar School, to Soule Steel Co., San Francisco.
- 104 Tons, Turlock, Cal., canal structures, to Kyle & Co., Fresno, Cal. previously reported to unnamed bidder.
- 104 Tons, Ontario, Cal., Chaffey High School science building, to Blue Diamond Corp., Los Angeles, through Shattuck Lumber Co.

NEW REINFORCING BAR PROJECTS NORTH ATLANTIC STATES

- 800 Tons, Danbury, Conn., prison building.
 - 500 Tons, Highbridge Park, N. J., approach, George Washington bridge; Wood & Hagen, New York, low bidders.
 - 375 Tons, Queens, N. Y., Plumb Beach channel bridge, Jamaica Bay, project SS-38-1.
 - 279 Tons, New York, section 3, East River Drive; bids to be taken soon by president, Borough of Manhattan.
 - 240 Tons, Orange County, N. Y., including 85 tons mesh, highway project R.C. 4008; bids close Nov. 29.
 - 233 Tons, New Rochelle, N. Y., barracks, Fort Slocum.
- Unstated tonnage, Youngstown, Ohio, Government housing project; bids Nov. 18.

CENTRAL AND WESTERN STATES

- 13,431 Tons, Seattle, Wash., Lake Washington Bridge; bids Nov. 29 to Washington Toll Bridge Authority, Olympia.
- 770 Tons, San Diego, Cal., Navy pier at Destroyer Base (alternate bid); Shannahan Brothers, low bidders.
- 468 Tons, Los Angeles County, Cal., Gage Avenue Bridge; bids in.
- 450 Tons, Grosse Point, Mich., Junior and Senior High School.
- 395 Tons, Pike County, Ohio, state highway project in Pee Pee Township, bids Nov. 22.
- 369 Tons, Los Angeles, North Hollywood High School.
- 300 Tons, Newport, Ark., flood wall.
- 280 Tons, Topeka, Kan., municipal auditorium.
- 262 Tons, Odair, Wash., Columbia Basin project (Invitation 38184-A); bids opened.
- 260 Tons, Rutledge, Tex., Colorado River project (Invitation 46647-A); bids opened.
- 250 Tons, Chanute Field, Ill., air corps barracks foundation; A. T. Atherson, Chicago, low bidder on general contract.
- 221 Tons, Los Angeles, Kern Avenue Junior High School.
- 200 Tons, Marked Tree, Ark., drainage project.

- 200 Tons, Owensboro, Ky., Ohio River bridge.
 - 190 Tons, E. Lansing, Mich., girls' dormitory, Michigan State College.
 - 180 Tons, Los Angeles, San Pedro High School building; contracting engineers, Los Angeles, contractor.
 - 175 Tons, Decatur, Ill., county building, J. L. Simmons Co., Decatur, low bidder on general contract.
 - 167 Tons, Blaisdell, Ariz., Gila project (Invitation 24666-A); bids Nov. 10.
 - 150 Tons, Crownover, Wash., Yakima-Roza project (Invitation A33796); bids opened.
 - 150 Tons, Leavenworth, Wash., Columbia Basin project (Invitation 38189-A); bids opened.
 - 147 Tons, Crownover, Wash., Yakima-Roza project (Invitation 33798-A); bids opened.
 - 136 Tons, Rutledge, Tex., Colorado River project (Invitation 46644); bids opened.
 - 135 Tons, Little Rock, Ark., flood wall.
 - 130 Tons, Kismet, Kan., railroad bridge.
 - 121 Tons, Redwood City, Cal., City Hall and library; bids opened.
 - 118 Tons, Newport, Ark., drainage project.
 - 112 Tons, Shafter, Cal., school.
- Unstated tonnage, Chicago, vocation school.
- Unstated tonnage, Chicago, Cook County hospital addition.

CAST IRON PIPE

Narragansett, R. I., will close bids Nov. 15 on 26,000 ft. of 10-in. pipe, 9000 ft. of 8-in., and 9000 ft. of 6-in.

Procurement Department, Boston, has awarded 7932 ft. of 12-in. pipe to Donaldson Iron Co.

Lincoln, Mass., will close bids Nov. 12 on 21,000 ft. of 8-in. pipe and smaller quantities of other sizes.

Sanbornville, N. H., will close bids Nov. 15 on 20,000 ft. of 4, 6, 8 and 10-in. pipe.

Borough of Manhattan, New York, will take bids soon on 4-ft. pipe for section 3, East River Drive. Cost about \$40,000.

Newbern, Tenn., asks bids until Nov. 17 for pipe line extensions in water system, new booster pumping unit and other waterworks equipment; also for improvements in sewer system. Fund of \$52,269 has been arranged for entire project. L. O. Brayton Engineering Co., Dyersburg, Tenn., is consulting engineer.

Soldier Township Board, near Topeka, Kan., N. T. Caldwell, 2034 North Jefferson Street, Topeka, treasurer, asks bids until Nov. 16 for about 20 miles of 2 to 8-in. for water system in Rochester district. Fund of \$142,167 has been arranged. O. J. Eidman, New England Building, Topeka, is consulting engineer.

Aubrey, Tex., closes bids Nov. 14 for pipe lines for water system and other waterworks installation. Freese & Nichols, Capps Building, Fort Worth, Tex., are consulting engineers.

Melrose, Wis., is arranging immediate call for bids for pipe lines for water system and other waterworks equipment, including elevated steel tank and tower, pumping machinery, etc. Fund of \$47,273 has been arranged. Davy & Davy, 502 Main Street, La Crosse, Wis., are consulting engineers.

Smithfield, Ohio, has awarded 250 tons of cast iron pipe to J. B. Clow & Son Co., Cleveland.

Steubenville, Ohio, has awarded 120 tons of cast iron sewer pipe to J. B. Clow & Son Co., Cleveland.

Idaho Falls, Idaho, plans pipe line extensions in water system, including about 1700 ft. of 10-in. for main feeder line; also 500,000-gal. capacity elevated steel tank and tower. Cost \$58,500, of which \$26,325 will be represented by a Federal grant.

Fairfield, Iowa, closes bids Nov. 25 for pipe line extensions in water system and other waterworks installation. Cost about \$25,225. Amiel Richstein is city engineer.

Red Level, Ala., asks bids until Nov. 15 for pipe line extensions in water system, new pumping machinery and auxiliary equipment. Cost about \$30,000. R. L. Kenan, Bell Building, Montgomery, Ala., is consulting engineer.

Panama City, Fla., plans pipe line extensions in water system and other waterworks installation. Fund of \$63,000 has been arranged through Federal loan and grant.

Narragansett, R. I., closes bids about Nov. 15 for pipe lines for extensions and replacements in water system, and other waterworks installation. Cost about \$465,000, of which \$209,332 will represent a Federal grant. Fay, Spofford & Thorndike, 11 Beacon Street, Boston, are consulting engineers.

Botkins, Ohio, plans pipe lines for water system and other waterworks installation. Cost about \$58,000, which is being arranged through bond issue, recently voted, and Federal aid. E. P. Light, 323 George Street, Van Wert, Ohio, is consulting engineer.

Golden, Colo., plans about 5.3 miles of main supply line for water system and extensions in distributing lines; also new twin reservoirs and chlorination plant. Cost about \$160,274, of which \$72,124 has been secured through a Federal grant.

Department of Water and Power, Los Angeles, has awarded 829 tons of 6 and 8-in. cast iron pipe to National Cast Iron Pipe Co., Los Angeles, and 702 tons of 6 and 8-in. pipe to American Cast Iron Pipe Co., Los Angeles, under Specification 2819.

Department of Water and Power, Los Angeles, asks bids Nov. 14 on 113 tons of 16-in. cast iron pipe.

SWOC Pickets "Strong Arm" J. & L. Workers, Warn of Closed Shop

PITTSBURGH.—Failing to obtain the closed shop by direct negotiations with steel companies in the past, the Steel Workers' Organizing Committee, John L. Lewis' CIO affiliate, is attempting to realize the equivalent of a closed shop by "strong-arm" dues collection methods.

This was apparent last week when over 1000 employees at Jones & Laughlin Steel Corp.'s Aliquippa works were "shut out" because they were either delinquent in union dues or did not belong to the union.

What Contract Provides

Similar "picketing" occurred at the company's Pittsburgh works, where about 50 workers were turned back. In many cases employees either paid back dues or joined the union and were allowed to report for work.

(The standard SWOC contract includes provisions that "the union agrees not to intimidate or coerce employees into membership and also not to solicit membership on corporation time or plant property . . . or should any trouble of any kind arise in any plant, there shall be no suspension of work on account of such differences, but an earnest effort shall be made to settle such differences immediately.")

Steel production and finishing was closed down in several departments of the Aliquippa works, while in other divisions operations were slowed up. No complete shut downs were reported at the Pittsburgh works, although in many cases production work was not under way until one to two hours later than the normal time.

In some cases, steel works foremen were forced to obtain a union pass or be subjected to union recognition before being allowed to go through the gates. Union employees affiliated with other labor groups such as railroad organizations were allowed through the gates upon presenting their union cards.

Union Heads Away

After some minor violence at the Aliquippa works, the dues collection drive was called off by local union officials who "feared violation of the union's contract with the company and possibility that further injuries would be sustained by workmen."

It is understood company officials consider the interference with opera-

tions and steel workers a violation of the contract between the company and the union, and a strong complaint is expected to be made to union officers, all of whom were out of town when the major dues drive went on.

Although the dues drive was called a local and spontaneous affair by union

officials, the drive had been planned at least two weeks in advance, according to bulletins distributed by union lodges. According to local lodge leaders, the goal of the SWOC, at the Jones & Laughlin plant at least, is to make it a 100 per cent union shop. A bulletin distributed to employees recently, stated, "Remember our goal, 100 per cent union shop at Jones & Laughlin. Also remember that such measures as may be necessary will be taken to attain this goal."

SWOC

CIO

SPECIAL

BULLETIN

A SPECIAL MEETING WILL BE HELD ON THURSDAY, OCTOBER 13th,
1938 AT THE HUNGARIAN HALL, 4829 Second Avenue, Hazelwood, at
7:30 P.M. THIS MEETING WILL MARK THE OPENING OF OUR CAMPAIGN
TO MAKE J.&L. A 100% UNION SHOP!!!

NATIONALLY KNOWN SPEAKERS WILL BE PRESENT TO ADDRESS THE
MEETING. ALL MEMBERS IN GOOD STANDING ARE URGED TO ATTEND THIS
MEETING. DELINQUENT MEMBERS are requested immediately to MAKE
THE NECESSARY ARRANGEMENTS FOR RE-INSTATEMENT. DO THIS NOW!!
DON'T WAIT!! DELINQUENT MEMBERS WILL BE RE-INSTATED BY PAYING
THE INITIATION FEE OF \$3.00 AND THE CURRENT MONTH DUES. THIS
SUM MAY BE PAID UPON APPLICATION OR MAY BE PAID BY CONVENIENT
INSTALLMENTS. NON-MEMBERS CAN APPLY FOR MEMBERSHIP UNDER THE
ABOVE TERMS, THE WAY IS OPEN FOR EVERY J.&L. MAN TO BECOME
A 100% UNION MAN. SEE YOUR SHOP STEWARD NOW OR APPLY AT THE UNION
OFFICE, 4731 SECOND AVENUE, HAZELWOOD, IMMEDIATELY.
REMEMBER OUR GOAL: 100% UNION SHOP AT J.&L.'s. ALSO REMEMBER
THAT SUCH MEASURES AS MAY BE NECESSARY WILL BE TAKEN TO ATTAIN
THIS GOAL!! WORKERS GET IN THIS CAMPAIGN AND DO YOUR PART.
SPEAK, THINK AND TALK UNION. WE MUST ACHIEVE THIS GOAL FOR OUR
COMMON GOOD.
MEMBERS OF THE DUES CHECKING COMMITTEE ARE REQUESTED TO ATTEND
THIS MEETING.

JAMES J. THOMAS
President

WALTER EVERSON
Recording Secretary

WARNINGS like that shown above are being handed thousands of Jones & Laughlin Steel Corp. employees in efforts by the Steel Workers Organizing Committee to collect dues.

CIO of Little Help to New Deal In Pennsylvania, Ohio Mill Towns

INDUSTRIAL counties in Pennsylvania and Ohio, torn in the summer of 1937 by the "Little Steel" strike, and other communities disturbed by CIO-fostered strikes for the most part voted Republican in Tuesday's election.

Disregarding an injunction from Philip Murray and other SWOC officials to "vote Democratic," Trumbull county in Ohio, in which Republic Steel Corp.'s Warren plant is located, gave large majorities to the successful Republican candidates for governor and senator.

Cambria county, Pa., which includes Bethlehem Steel Corp.'s plant at Johnstown, gave narrow leads to Governor-Elect Arthur H. James and Senator James J. Davis in an election in which Governor Earle's closing of the Johnstown plant was an issue.

Likewise in Pennsylvania's highly-industrialized Beaver county, where a series of CIO strikes have been held, the voters chose the anti-CIO candidates.

However, the CIO and its affiliate, the SWOC, had the satisfaction of seeing Mahoning county (Youngstown, Ohio), with Republic and Youngstown Sheet & Tube Co. plants, go to candidates which they had favored.

The vote in Aliquippa, Pa., site of one of Jones & Laughlin Steel Corp.'s large plants, gave the CIO-New Deal candidates a modest lead which was, however, far under the Democratic pluralities of four years ago.

Of 27 industrial, mining and rural counties in western Pennsylvania, 23 went Republican, three Democratic and one was split. Unofficial returns showed Allegheny county voters gave Governor Earle, the CIO-backed candidate for senator, 256,852 against 255,560 for Senator Davis. Judge James received 241,203 votes in that county to 271,586 for Charles Alvin Jones, his Democratic opponent.

CIO Union Ends Strike In U. S. Steel Subsidiary

A STRIKE called by the Industrial Union of Marine and Shipbuilders, a CIO affiliate, at the Kearny, N. J., yards of Federal Shipbuilding & Dry Dock Co., a U. S. Steel Corp. subsidiary, has been ended after a week's

stoppage of work on three destroyers. The union finally agreed to arbitration of a dispute involving on alleged speedup of work for welders, a method of settlement provided in its contract with Federal Shipbuilding.

W. Wear Discusses Steel Pay Ruling

WILBERT WEAR, president of Harrisburg Steel Corp., this week urged that small companies be considered in the Public Contracts Board's minimum steel wage recommendations. In a telegram to THE IRON AGE, Mr. Wear said:

"Recommendations of the Public Contracts Board recognize the principle of geographical differentials, therefore, consideration should be given the history of the industry wherein the common labor rates of pay for the Eastern wage district have been lower than in other wage districts except the Southern.

"For many years differentials have also existed between large and small companies and should also be recognized. In the United States Government's preparedness program, allotment of Government contracts should be given smaller companies to keep skilled workmen in training in the event of war. Therefore, the board's recommendation that further study be made of the position of the smaller companies in the competition for Government business should be duly considered by the Secretary of Labor and differentials be determined in labor rates."

Germany Buys More British Scrap

LONDON (By Mail).—Britain is continuing to receive substantial orders from Germany for scrap. It is understood that most of this scrap is needed for steel for the armament factories. At the same time, Belgium is also purchasing considerable quantities of scrap for resale to Germany.

There has been some criticism of the action of British scrap dealers in accepting this German business in view of the critical political situation in Europe, but they reply that competition must be faced. With so much scrap available, if they did not accept the orders then foreign dealers would.

However, both the British War Office and the Admiralty state that the export of scrap metal belonging to them is expressly forbidden.

Hunter Steel Elects New Directors

PITTSBURGH.—At a recent meeting of the Hunter Steel Co. board of directors, the following new directors were elected: J. H. Hillman, Jr., Albert P. Meyer, A. M. Kennedy, G. E. Dignan and W. L. Affelder.

The following new officers were also elected: J. H. Hillman, Jr., president; Albert P. Meyer, executive vice-president; A. M. Kennedy, vice-president; and J. F. Woessner, secretary-treasurer. The above officials are also officers of the Pittsburgh Coke & Iron Co. The Pittsburgh Coke & Iron Co. recently acquired a substantial interest in the common shares.

McKeesport to Sell Cold Reduced Plate

PITTSBURGH.—McKeesport Tin Plate Corp., McKeesport, Pa., recently sold to a leading life insurance company \$6,000,000 of 10-year sinking fund debentures. The funds will be used to retire outstanding bank loans and provide additional working capital. In line with the increased demand for cold reduced tin plate, the company is now in a position to supply this product. Cold rolled tin mill black plate is being purchased from the leading steel producer and will be tinned by the McKeesport company.

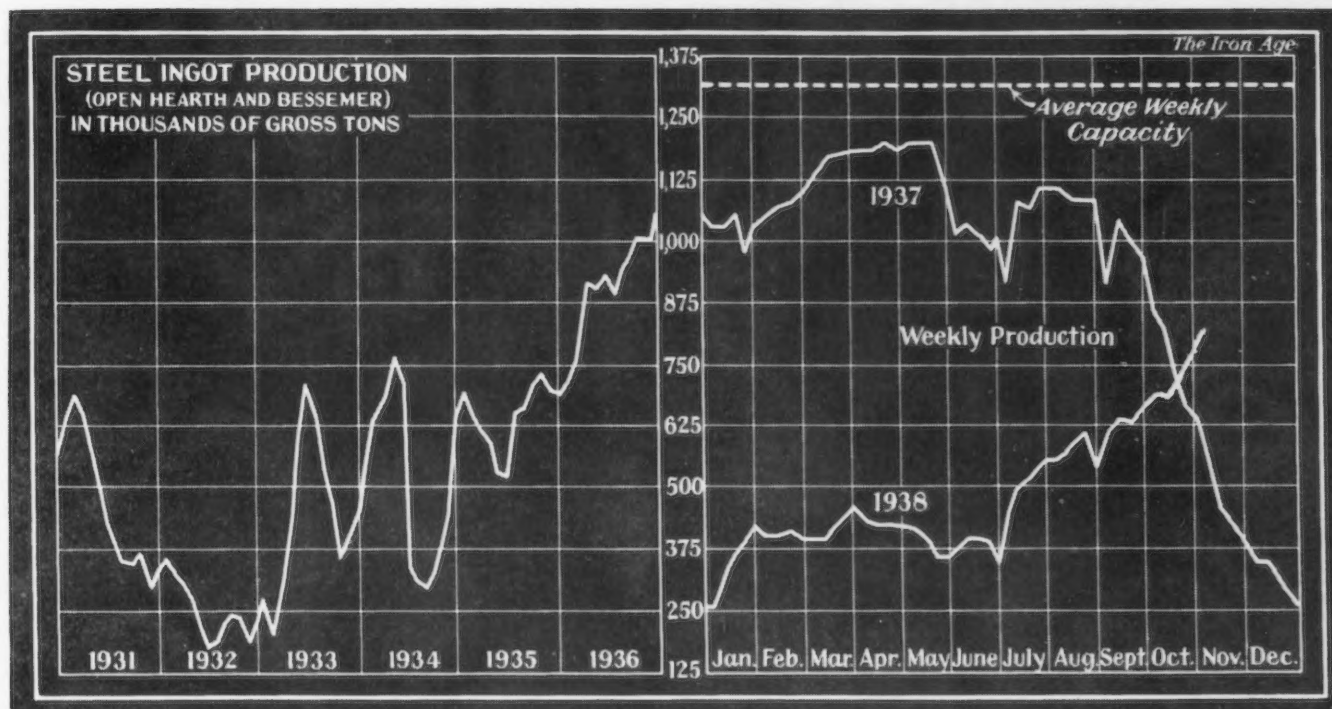
Monarch Machine Tool To Erect New Building

MONARCH MACHINE TOOL CO. has awarded contracts for a new two-floor office building to be erected at Sidney, Ohio, where the project will increase the company's plant and office area by 35,000 sq. ft., according to an announcement by W. E. Whipp, president. A lag between designing and producing the Monarch lathes will be eliminated by the expansion, Mr. Whipp said.

Heavy Building Awards 8 Per Cent Above 1937

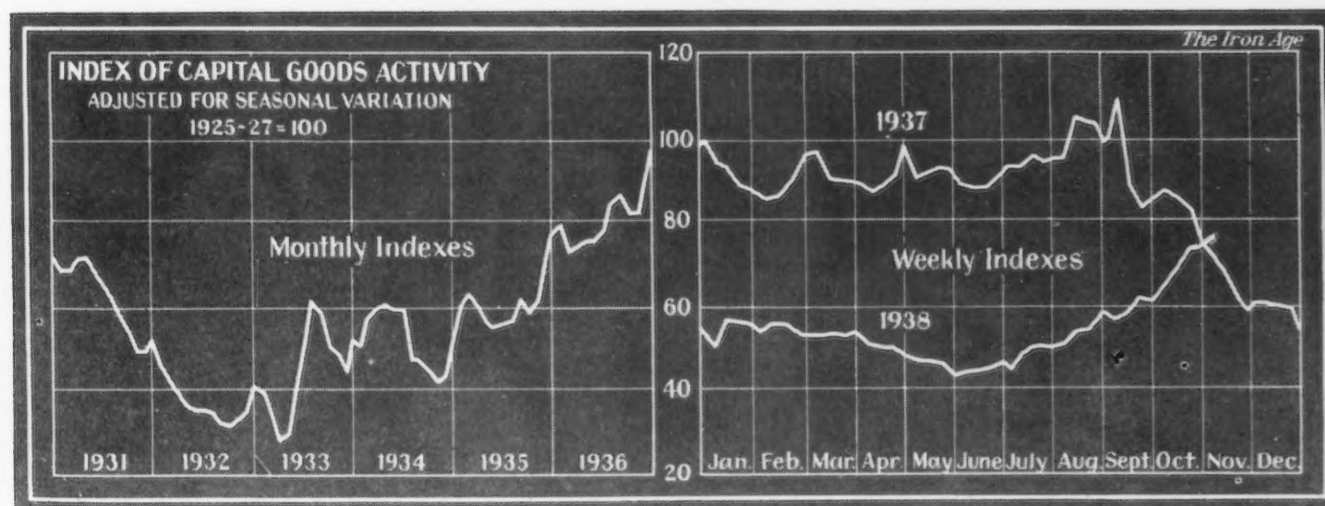
HEAVERY engineering construction awards in October totaled \$235,898,000, bringing the cumulative total of the first 10 months of the present year to \$2,235,658,000, an increase of 7.8 per cent over the corresponding period of 1937, according to *Engineering News-Record*. The average weekly total for October, \$58,975,000, is the highest average for any month since June, 1937, and the highest October average since 1929.

Ingot Output Jumps 4 Points to 61 Per Cent



District Ingot Production, Per Cent of Capacity		Pitts- burgh	Chicago	Valleys	Phila- delphia	Cleve- land	Wheel- ing	Buffalo	Detroit	Southern	S. Ohio River	Western	St. Louis	East- ern	Aggre- gate
CURRENT WEEK..		49.0	58.0	68.0	35.0	75.0	90.0	49.0	85.5	56.0	64.0	40.0	58.5	75.0	61.0
PREVIOUS WEEK..		45.0	56.0	62.0	35.0	73.0	80.0	51.0	83.5	56.0	59.5	50.0	54.0	40.0	57.0

Capital Goods Activity Reaches 12-Month Peak



ACTIVITY in the production and distribution of durable goods in the week ended Nov. 5 was at the highest level recorded in 12 months, according to THE IRON AGE index. The index for that week stands at 74.7, as compared with 72.2 in a like week of 1937. Heavy gains in steel production, heavy construction work and activity in the Pittsburgh area, which more than compensated for small losses in the automobile and lumber carloadings series, were responsible for the week's advance. For the second consecutive week the automobile index

declined due to the failure of automobile assemblies to gain in keeping with the normal seasonal movement.

	Week Ended Nov. 5	Week Ended Oct. 29	Comparable Week	
Steel ingot production	80.8	75.3	1937	1929
Automobile production	90.8	92.2	67.5	106.3
Construction contracts	80.2	78.6	101.8	116.4
Forest products carloadings	56.6	60.1	54.5	112.0
Production and shipments, Pittsburgh District	64.9	61.8	65.0	118.0
Combined index	74.7	73.6	72.0	112.0
			72.2	112.9

... SUMMARY OF THE WEEK ...

... Ingot output rises to 61 per cent; sheet mills very active.

o o o

... Business sentiment improved by results of election.

o o o

... Tin plate price announcement expected momentarily.

BUSINESS sentiment has been measurably improved by the substantial losses suffered by the New Deal at the polls on Tuesday. If these are followed by a restoration of the confidence that has been lacking in many quarters, an actual stimulation of new enterprise may develop, particularly in such strongly industrialized States as Pennsylvania, Ohio and Michigan.

A noteworthy result of the election is the heavy anti-New Deal vote in industrial areas that have been the scene of violent labor disturbances provoked by the CIO, indicating that the close tie-up of the Lewis organization and the New Deal Administration has been a liability to the latter rather than an asset.

Unless there is a revival of private undertakings, it is difficult to foresee a continuance of the present favorable trend in steel bookings and production beyond the time when lettings of Government-financed projects reach a peak, which probably will be about next March. Aside from the automobile industry, which is making rapid strides in getting back to a normal basis of operations, there is no outstanding improvement in any important steel-consuming channel.

MUCH of the current activity, which has lifted ingot production this week to 61 per cent, as compared with an average output last month of 52.45 per cent, emanates from the automobile industry and Government-financed construction work. Automobile companies are taking large shipments of steel and in some instances have asked for earlier deliveries than were originally specified, which accounts in part for the four-point rise in operations over last week.

Steel companies are insisting on immediate specification of recent low-priced commitments, and are taking a stand against acceptance of any

that are received too late for rolling and shipment by Dec. 31. This policy seems to assure the continuance of sheet and strip rolling at a high rate to the end of the year. Meanwhile, a good many orders at the present prices have been placed by users who did not cover prior to the restoration of the current price level. In the case of a leading producer, delivery promises on sheets have lengthened to 11 or 12 weeks on light gage cold rolled, six to seven weeks on heavy gages; five to six weeks on hot rolled, and three weeks or longer on galvanized sheets.

Continuous sheet mills, on which cold reduced black plate for tinning is produced, may be further loaded up with tonnage if announcement of a new tin plate price, which is expected at any moment, should result in the release of a considerable volume of tin plate business that has been held back pending a decision on the 1939 contract price.

The immediate outlook for steel operations, therefore, is promising. No letdown this month is indicated, and, in fact, the rate may rise further during November and possibly December. It seems probable that the 1938 ingot total will be nearly 30,000,000 tons, output in 10 months having been 21,123,872 tons.

Scrap prices are moderately stronger at Pittsburgh, having advanced 25c. a ton, raising THE IRON AGE composite price to \$14.50, up 8c.

RAILROAD buying has improved moderately, but is of no real consequence in the total of all-steel business. The prospect of Government assistance to some of the weaker roads in making equipment and other purchases is encouraging to those who supply the railroads, but no important increase in this neglected field of steel consumption is expected during the short time remaining in 1938.

Construction work, however, is expected to supply some of the tonnage that will be needed to push steel operations higher. Plate business is one of the conspicuous laggards, but Navy and commercial shipbuilding works promises some aid within the next few months.

The Navy will require 42,000 tons of armor plate and 33,000 tons of plain steel, mostly sheared plates, for three battleships on which bids were taken last week, but these requirements will be spread over a long period. Navy needs for smaller boats on which bids are being taken this month are a more immediate prospect.

Structural steel lettings in the week were about 24,000 tons and new work out for bids totals 27,000 tons. The Chicago subway, for which requirements can only be estimated, probably will take about 85,000 tons of steel.

A Comparison of Prices

Market Prices at Date, and One Week, One Month, and One Year Previous
Advances Over Past Week in Heavy Type, Declines in Italics

Rails and Semi-finished Steel

Per Gross Ton:	Nov. 9, 1938	Nov. 1, 1938	Oct. 11, 1938	Nov. 9, *1937
Rails, heavy, at mill	\$40.00	\$40.00	\$40.00	\$42.50
Light rails: Pittsburgh, Chicago, Birmingham	40.00	40.00	40.00	43.00
Rerolling billets: Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Buffalo, Birmingham, Sparrows Point	34.00	34.00	34.00	37.00
Sheet bars: Pittsburgh, Chicago, Cleveland, Youngstown, Buffalo, Canton, Sparrows Point	34.00	34.00	34.00	37.00
Slabs: Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Buffalo, Birmingham, Sparrows Point	34.00	34.00	34.00	37.00
Forging billets: Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Buffalo, Birmingham	40.00	40.00	40.00	43.00
Wire rods: Nos. 4 and 5, Pittsburgh, Chicago, Cleveland	43.00	43.00	43.00	47.00
Skelp, grvd. steel: Pittsburgh, Chicago, Youngstown, Coatesville, Sparrows Point, cents per lb.	1.90	1.90	1.90	2.10

Finished Steel

Cents Per Lb.:	Nov. 9, 1938	Nov. 1, 1938	Oct. 11, 1938	Nov. 9, *1937
Bars: Pittsburgh, Chicago, Gary, Cleveland, Buffalo, Birmingham	2.25	2.25	2.25	2.45
Plates: Pittsburgh, Chicago, Gary, Birmingham, Sparrows Point, Cleveland, Youngstown, Coatesville, Claymont	2.10	2.10	2.10	2.25
Structural shapes: Pittsburgh, Chicago, Gary, Buffalo, Bethlehem, Birmingham	2.10	2.10	2.10	2.25
Cold finished bars: Pittsburgh, Buffalo, Cleveland, Chicago, Gary	2.70	2.70	2.70	2.90
Alloy bars: Pittsburgh, Chicago, Buffalo, Bethlehem, Massillon or Canton	2.80	2.80	2.80	3.00
Hot rolled strip: Pittsburgh, Chicago, Gary, Cleveland, Middletown, Youngstown, Birmingham	2.15	2.15	1.95	2.40
Cold rolled strip: Pittsburgh, Cleveland, Youngstown	2.95	2.95	2.75	3.20
Sheets, galv., No. 24: Pittsburgh, Chicago, Gary, Sparrows Point, Buffalo, Middletown, Youngstown, Birmingham	3.50	3.50	3.50	3.80
Hot rolled sheets: Pittsburgh, Gary, Birmingham, Buffalo, Sparrows Point, Cleveland, Youngstown, Middletown	2.15	2.15	1.95	...
Cold rolled sheets: Pittsburgh, Gary, Buffalo, Youngstown, Cleveland, Middletown	3.20	3.20	3.00	...

On export business there are frequent variations from the above prices. Also in domestic business, there is at times a range of prices on various products, as shown in our detailed price tables.

Cents Per Lb.:

	Nov. 9, 1938	Nov. 1, 1938	Oct. 11, 1938	Nov. 9, *1937
Wire nails: Pittsburgh, Chicago, Cleveland, Birmingham	2.45	2.45	2.45	2.75
Plain wire: Pittsburgh, Chicago, Cleveland, Birmingham	2.60	2.60	2.60	2.90
Barbed wire, galv.: Pittsburgh, Chicago, Cleveland, Birmingham	3.20	3.20	3.20	3.40
Tin plate, 100 lb. base box: Pittsburgh and Gary	\$5.35	\$5.35	\$5.35	\$5.35

*Pittsburgh prices only.

Pig Iron

Per Gross Ton:	Nov. 9, 1938	Nov. 1, 1938	Oct. 11, 1938	Nov. 9, *1937
No. 2 fdy., Philadelphia	\$22.84	\$22.84	\$22.84	\$25.76
No. 2, Valley furnace	21.00	21.00	21.00	24.00
No. 2, Southern Cin'ti	21.06	21.06	21.06	23.69
No. 2, Birmingham	17.38	17.38	17.38	20.38
No. 2, foundry, Chicago	21.00	21.00	21.00	24.00
Basic, del'd eastern Pa.	22.34	22.34	22.34	25.26
Basic, Valley furnace	20.50	20.50	20.50	23.50
Malleable, Chicago	21.00	21.00	21.00	24.00
Malleable, Valley	21.00	21.00	21.00	24.00
L. S. charcoal, Chicago	28.34	28.34	28.34	30.04
Ferromanganese, seab'd, carlots	92.50	92.50	92.50	102.50

†The switching charge for delivery to foundries in the Chicago district is 60c. per ton.

Scrap

Per Gross Ton:	Nov. 9, 1938	Nov. 1, 1938	Oct. 11, 1938	Nov. 9, *1937
Heavy melting steel, P'gh.	\$15.00	\$14.75	\$15.25	\$13.75
Heavy melting steel, Phila.	14.75	14.75	14.75	13.75
Heavy melting steel, Ch'go.	13.75	13.75	12.75	13.00
Carwheels, Chicago	13.00	13.75	13.25	15.25
Carwheels, Philadelphia	16.75	16.75	16.75	17.75
No. 1 cast, Pittsburgh	15.50	15.50	15.50	16.75
No. 1 cast, Philadelphia	16.75	16.75	16.75	17.75
No. 1 cast, Ch'go (net ton)	12.75	12.25	12.25	11.50
No. 1 RR. wrot., Phila.	15.25	15.25	15.25	17.75

Coke, Connellsville

Per Net Ton at Oven:	Nov. 9, 1938	Nov. 1, 1938	Oct. 11, 1938	Nov. 9, *1937
Foundry coke, prompt	\$3.75	\$3.75	\$3.75	\$4.25
Foundry coke, prompt	4.75	4.75	4.75	5.00

Non-Ferrous Metals

Cents per Lb. to Large Buyers:	Nov. 9, 1938	Nov. 1, 1938	Oct. 11, 1938	Nov. 9, *1937
Electrolytic copper, Conn.	11.25	11.25	10.75	11.00
Lake copper, New York	11.375	11.375	10.875	12.125
Tin (Strait), New York	46.025	46.50	44.875	43.00
Zinc, East St. Louis	5.05	5.05	4.95	5.75
Zinc, New York	5.44	5.44	5.34	6.10
Lead, St. Louis	4.95	4.95	4.95	4.85
Lead, New York	5.10	5.10	5.10	5.00
Antimony (Asiatic), N. Y.	14.00	14.00	14.00	16.50

The Iron Age Composite Prices

Finished Steel

	2.286 a Lb.
November 9, 1938	2.286
One week ago	2.236
One month ago	2.236
One year ago	2.512c.

Based on steel bars, beams, tank plates, wire, rails, black pipe, sheets and hot-rolled strip. These products represent 85 per cent of the United States output.

	HIGH	LOW
1938.....	2.512c., May 17	2.211c., Oct. 18
1937.....	2.512c., Mar. 9	2.249c., Jan. 4
1936.....	2.249c., Dec. 28	2.016c., Mar. 10
1935.....	2.062c., Oct. 1	2.056c., Jan. 8
1934.....	2.118c., Apr. 24	1.945c., Jan. 2
1933.....	1.953c., Oct. 3	1.792c., May 2
1932.....	1.915c., Sept. 6	1.870c., Mar. 15
1931.....	1.981c., Jan. 13	1.883c., Dec. 29
1930.....	2.192c., Jan. 7	1.962c., Dec. 9
1929.....	2.223c., Apr. 2	2.192c., Oct. 29
1928.....	2.192c., Dec. 11	2.142c., July 10
1927.....	2.402c., Jan. 4	2.212c., Nov. 1

Pig Iron

	\$20.61 a Gross Ton
November 9, 1938	20.61
One week ago	20.61
One month ago	20.61
One year ago	23.25

Based on average basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Southern iron at Cincinnati.

	HIGH	LOW
23.25, June 21	\$19.61, July 6	20.25, Feb. 16
23.25, Mar. 9	18.73, Aug. 11	18.84, Nov. 5
19.73, Nov. 24	17.83, May 14	17.90, May 1
18.84, Nov. 5	13.56, Jan. 3	16.90, Dec. 5
17.90, May 1	13.56, Dec. 6	14.81, Jan. 5
16.90, Dec. 5	14.79, Dec. 15	15.90, Jan. 6
14.81, Jan. 5	15.90, Dec. 16	18.21, Jan. 7
15.90, Jan. 6	18.21, Dec. 17	18.71, May 14
18.21, Jan. 7	17.04, July 24	18.59, Nov. 27
18.71, May 14	17.54, Nov. 1	19.71, Jan. 4

Steel Scrap

	\$14.50 a Gross Ton
November 9, 1938	14.42
One week ago	14.25
One month ago	14.25
One year ago	13.50

Based on No. 1 heavy melting steel quotations at Pittsburgh, Philadelphia and Chicago.

	HIGH	LOW
14.83, Aug. 9	\$11.00, June 7	21.92, Mar. 30
17.75, Dec. 21	12.92, Nov. 16	17.75, Dec. 21
13.42, Dec. 10	10.33, Apr. 23	13.00, Mar. 13
13.00, Mar. 13	9.50, Sept. 25	12.25, Aug. 8
12.25, Aug. 8	6.75, Jan. 3	8.50, Jan. 12
8.50, Jan. 12	6.43, July 5	11.33, Jan. 6
11.33, Jan. 6	8.50, Dec. 29	15.00, Feb. 18
15.00, Feb. 18	11.25, Dec. 9	17.53, Jan. 29
17.53, Jan. 29	14.08, Dec. 3	16.50, Dec. 31
16.50, Dec. 31	13.08, July 2	15.25, Jan. 17
15.25, Jan. 17	13.08, Nov. 22	

.. THIS WEEK'S MARKET NEWS ..

STEEL OPERATIONS

... Country's rate this week estimated at 61%

AT mid-week the steel ingot producing capacity of the country was being operated at 61 per cent, according to the estimate of THE IRON AGE, which coincides with the estimate of the American Iron and Steel Institute issued on Monday. The estimate of THE IRON AGE for last week was 57 per cent.

The WHEELING-WEIRTON district has the highest rate of operation, 90 per cent, which is closely seconded by the DETROIT district with 85.5 per cent. An increase at DETROIT by the Ford Motor Co. has raised the district average two points, the Great Lakes Steel Corp. having been at 100 per cent for nearly two weeks.

The PITTSBURGH rate has risen four points to 49 per cent, while the gain to 90 per cent in the WHEELING-WEIRTON area is a boost of 10 points. Most of the increase in the latter district is the result of releases of flat rolled tonnage.

Increased activity at three CHICAGO mills carries the operating rate there to 58 per cent, a gain of two points, and the activity of sheet and strip mills is expected to maintain this rate at least through this month. In the CLEVELAND-LORAIN district there is a rise of two points to 75 per cent, while in the YOUNGSTOWN district a gain of six points carries the rate to 68 per cent. ST. LOUIS also made a gain to 58.5 per cent, SOUTHERN OHIO to 64 per cent, while the BIRMINGHAM district is running steadily at 56 per cent. The PHILADELPHIA district at 35 per cent makes the poorest showing in the country.

NEW BUSINESS

*... Trend is still upward ...
Political results may be a factor*

AS expected, new flat rolled business is light, but is nevertheless slightly greater than had been anticipated. Discounting major support from the automotive industry, general steel demand from other sources is at about the same rate as it has been for the past several weeks. There are indications, however, that individual bookings are larger in some cases and

emanate from a greater number of customers. No halt, however, has been called in hand-to-mouth buying practices except where automobile manufacturers are concerned.

Many sheet users did not take advantage of the recent low market and are placing a fair amount of business at the restored prices. This type of buying is expected for the remainder of the year.

Taking merchant bars as the best current indicator of demand for steel, the tendency of buying has been upward during the first week of this month.

The trend toward conservatism shown at the polls Tuesday in many parts of the nation is generally interpreted as highly favorable toward industry and may result in the release of a number of expansion programs held back for months.

The CHICAGO subway is the most important new project pending in the Middle West. PWA engineers called for the abandonment of the open cut method of constructing the subway, for which it had been estimated about 85,000 tons of steel would be required and substituted tunneling. Not much difference in total tonnage is anticipated although the breakdown of products will vary. That is, less sheet piling will be needed under the tunneling method whereas more liner plates and ribs probably will be purchased. As the work now stands, the open cut estimate is all that is available. Only all-steel cars are to be used in the tubes, and at least 800 new cars must be built.

Ordering of steel from miscellaneous outlets is improving steadily in EASTERN PENNSYLVANIA, but the volume of new business coming onto books in November, of course, will not equal that secured during the price reduction in October. However, November shipments will be well above those of October. PHILADELPHIA autobody stamping plants report spectacular increases in operations; both plants are operating at capacity and report that demands from automobile companies are becoming more urgent daily.

Present business and prospects are reported good for reinforcing bars on the PACIFIC COAST. In Southern California, especially, public orders are backed up by a good volume of private business.

In the ST. LOUIS district mills are still busy on orders received for sheets and strips during the lower-price period, but there is little new business coming in.

PRICES

... A firmer tendency is noted in some products

SOME manufacturers of sheets and strip are asking their customers for immediate specifications against recent low-priced commitments, telling them that if specifications come in late and cannot be rolled and shipped by Dec. 31 they will be billed at the higher price level now in effect. If mills adhere rigidly to this program, there will be little or no carryover of low-priced tonnage into the first quarter, which will tend to strengthen the price situation.

On major steel products prices are holding firm, the principal points of weakness being plates in the East, wire nails in various areas, reinforcing bars and fabricated structural steel. A slightly firmer tendency in reinforcing bars is noted in some districts.

An announcement of the 1939 tin plate price, which is expected at any moment, will end long uncertainty.

PIG IRON

... New business light, but shipments gain in some districts

NEW business in pig iron is extremely light, but shipments are gaining in some districts, particularly that area served principally by CHICAGO, CLEVELAND, DETROIT and TOLEDO furnaces.

From CHICAGO furnaces shipments in October were the largest for any month of the year thus far and were 25 per cent over those of September. A noticeable increase in activity at agricultural machinery foundries has been reported within the past few days, while shops catering to motor car needs continue busy. Foundry coke shipments from CHICAGO gained 12 per cent over those of September.

A further rise in shipments of both pig iron and coke is indicated for this month.

At CLEVELAND and YOUNGSTOWN shipments continue to improve. In at least two instances foundries believed to have protected themselves liberally before the price increase may be obliged to make further commitments before the end of this quarter. Additional blast furnaces at YOUNGSTOWN and MASSILLON steel plants are ready to resume operations on short notice.

Pig iron shipments at PITTSBURGH are fully as active as a month ago, and in some instances slight increases are shown. Carnegie-Illinois Steel Corp. will blow in a steel-making stack at Rankin, Pa. The recent sharp increase in steel ingot output has resulted in better ingot mold business.

In the BIRMINGHAM district the only two furnaces that are idle belong to the Sloss-Sheffield Steel & Iron Co.; other producers are working all furnaces.

Melt is improved among steel mills, jobbing foundries and stove plants in the ST. LOUIS district. Shipments are gaining moderately at CINCINNATI and BUFFALO. In the NEW YORK and PHILADELPHIA districts there is very little new domestic business, but shipments show moderate improvement. Nor has much gain in the foundry melt been seen in NEW ENGLAND.

PLATES

... Navy Department asks for bids on large lots

THE Bureau of Supplies and Accounts, Navy Department, will take bids this month on fair-sized tonnages of plates and other products for its program. On Nov. 25 it will open bids on 3706 tons of plates, sheets and strip for the torpedo boat destroyers *Gwin* and *Meredith* under construction at the Boston Navy yard, the *Livermore* at the Charleston, S. C., Navy yard, and the *Monssen* at the Puget Sound, Wash., Navy yard, while on Nov. 26 it will open bids on 3026 tons of plates, 428 tons of shapes and 96 tons of steel bars for the submarines *Triton*, *Trout* and *Tuna*, which are being constructed at the Portsmouth, N. H., and Mare Island, Cal., Navy yards.

Publicly financed projects are a major source of support for the plate market. Future prospects are dependent on shipbuilding and such railroad work as may result from possible

Government assistance. Such a program, however, probably would not produce results this year. At CLEVELAND a small amount of railroad car repair work has brought out moderate tonnages, while in the CHICAGO district there is a fair demand from tank builders and general manufacturing lines, but no real volume is in prospect during the remainder of the year.

Price weakness has not entirely disappeared, particularly in the EAST.

There is an inquiry out from Italy for 23,000 tons of plates and shapes to build a ship, but not much interest is being shown in this tonnage since it is felt that a successful bidder would have to offer as low as \$1.71 per 100 lb. f.a.s.

SEMI-FINISHED STEEL

... Better buying of billets at Pittsburgh

INCOMING semi-finished steel business at PITTSBURGH in the past week continued at recent high levels, with a fair portion of the support coming from non-integrated, flat-rolled producers. There has, however, been improved buying on the part of miscellaneous users of rerolling and forging billets. Steel works are fairly busy owing to the exceptionally heavy demand from their own flat-rolled departments. At CLEVELAND orders have been very light during the first few days of November.

STRUCTURAL STEEL

... Awards are larger, headed by 7500 tons for New York building

THIS week's awards of fabricated structural steel included some large projects. The Netherlands Building at Rockefeller City, New York, requiring 7500 tons, went to Bethlehem Steel Co., which also will furnish 4500 tons for three hangars at North Beach, N. Y., airport. Building No. 4 at the Brooklyn Navy yard, calling for 2200 tons, was awarded to the American Bridge Co.

In CHICAGO the American Bridge Co. also took a sizable job, 2200 tons, for the Austin Avenue subway.

There are prospects that lettings of structural steel over the remainder of the year will continue at a high rate. Various estimates have been made of the steel that will be required to com-

plete the Government-financed programs, these estimates ranging from 500,000 to as much as 1,000,000 tons, but a large part of this tonnage probably will not be placed until the first quarter of 1939.

Among pending jobs shortly to be placed are 7000 tons for the Meeker Avenue bridge in BROOKLYN; 2500 tons for the PHILADELPHIA municipal court house, bids on which are due Nov. 10; bridges in Kansas, Nebraska and Oklahoma. The CHICAGO subway, on which general contract bids will be taken Nov. 15, may take as much as 35,000 or 40,000 tons of structural steel, but accurate figures are not yet available.

Sheet piling orders are more numerous and are in larger tonnages. The Carnegie-Illinois Steel Corp. will furnish 2556 tons for Midway Island in the Pacific Ocean, 1700 tons for a bulkhead at Milwaukee and 850 tons for a Coast Guard station at Atlantic City. Replacement work at the Ford Motor Co. plant at Long Beach, Cal., will take 1000 tons and an assembly building for the Navy at San Diego, Cal., calls for 700 tons.

The Bureau of Supplies and Accounts, Navy Department, will open bids on Nov. 25 for 558 tons of shapes for four destroyers being built at the Puget Sound, Wash., and Boston Navy yards.

SHEETS AND STRIP

... Delivery situation is becoming tighter as orders pile up

THE statement in THE IRON AGE last week that a tighter delivery situation on sheets might result from heavy specifications against recent low-priced commitments is borne out by the shipment schedule of one of the largest producers, whose promises now are six to seven weeks on heavy gage cold rolled sheets, 11 to 12 weeks on light gage cold rolled, five to six weeks on hot rolled sheets and three to 10 weeks on galvanized sheets, depending on gage and type of sheet.

Although many consumers and jobbers covered their requirements for this quarter prior to the recent price advance, some did not do so because of having no immediate need for the material. Since then, however, quite a good many of such "hold-outs" have received orders for which they require sheets and strip and have placed orders at the new prices. Nearly every mill reports a fair amount of such business.

There is no serious jam of sheet and

strip business, but mills will be able to run through the next month and possibly to the end of the year without reduction of schedules, with the possibility that some may lift their rate higher. Some of the automobile manufacturers have asked for earlier deliveries than were at first specified, which has complicated the delivery situation for certain mills.

The Federal Prison Industries recently opened bids on 300 tons of hot rolled pickled sheets, on which an independent steel company quoted a low bid that was \$4 a ton below present prices.

RAILROAD BUYING

... No large programs expected until next year

RAILROAD buying of car parts, repair material and rails has improved a little, but no large programs are expected until next year, as it will take time to work out a plan of Government assistance. The only equipment purchase in early prospect is the possibility that the Illinois Central, which recently bought 1000 freight cars on a lease-purchase basis, may double the order.

The Western Maryland has bought 1000 tons of rails from two mills. The Missouri Pacific has ordered 800 tons of car parts from the American Car & Foundry Co.

The Public Service Co. of St. Louis has been authorized by the Federal Court to buy 25 buses.

The Bureau of Reclamation, Denver, has asked for bids by Nov. 30 on 2454 tons of 131-lb. rails, 706 tons of 112-lb. rails, 785 tons of tie plates, 500 tons of switches, frogs and switch stands, 225 tons of angle bars and joints, 142 tons of miscellaneous equipment and 130 tons of spikes. Material is to be used for Southern Pacific track relocation around Shasta Dam.

Edward G. Budd Mfg. Co., Philadelphia, has received an order for a seven-car stainless steel train from the Seaboard Air Line.

Orders for railroad equipment placed with domestic manufacturers in October totaled 29 diesel-electric locomotives and 2435 freight cars, according to *Railway Age*. These orders represent a substantial gain over the previous month when five locomotives and 1079 freight cars were ordered and also over the October, 1937, total, when only 21 locomotives were ordered. The cumulative total for the first 10 months of the present year is

130 locomotives, 11,841 freight cars and 118 passenger-train cars. In the corresponding period of 1937 orders aggregated 278 locomotives, 47,826 freight cars and 471 passenger-train cars.

REINFORCING BARS

... Some large projects will come into the market soon

TWO large projects which will require sizable tonnages of reinforcing bars are coming up or bid this month. The Chicago subway, on which general contract bids will be taken Nov. 15, will take possibly as much as 20,000 tons of bars, though this figure is indefinite. On Nov. 29 bids will be taken on the \$8,430,000 Lake Washington pontoon bridge from Seattle to Mercer Slough, Wash., by the Washington Toll Authority, Olympia, Wash. The structure, to be financed with PWA aid, will require 13,431 tons of bars, and 5245 tons of structural steel.

Bar requirements for the Harrisburg-Pittsburgh super-highway probably will be made known soon. Sizable tonnages of bars and reinforcing mesh will be required.

Efforts to strengthen prices are being made but without much success thus far.

(Details of reinforcing bar awards and inquiries will be found on page 80-C.)

WIRE PRODUCTS

*... Manufacturers buying well
... Prices are steadier*

MERCHANT wire demand at PITTSBURGH has quieted down some in the past few weeks but the change in trend is mostly of a seasonal nature. On the other hand, manufacturers' wire requirements continue heavier because of accelerated activity in the motor car industry. Not much change in the merchant wire booking situation is anticipated in the near future, although a sudden spurt in the agricultural region would be immediately reflected on mill books owing to small jobber inventories.

With bolt and nut manufacturers releasing against rod orders more freely and a satisfactory volume of merchants' and manufacturers' wire moving, mills at CLEVELAND are encouraged over the rate of improvement being shown. There has been a definite trend toward firmer prices in all branches of the industry.

Demand for wire is holding up well in the CHICAGO district, with manufacturing grades more prominent than merchant products. Automobile uses are chiefly responsible for the good showing of industrial wire. Sales over the remainder of the year are expected to equal current levels at least, and next spring should see considerable improvement. Nail prices are better and other quotations are firm.

Sellers in the NEW YORK area report a steady build-up of orders of manufacturers' wire in the last month. Spring wire is active and cold heading wire demand is reflecting the increase in automotive output. In the secondary market, wire mesh is still feeling the effects of price weaknesses of last summer. Wire nails out of jobbers' stocks are still very weak due to a price war that has been going on in the Metropolitan area for some months.

TUBULAR GOODS

... Pipe business begins to show improvement

TOTAL tubular sales at PITTSBURGH have increased some during the past week. Recent improvement in standard pipe demand aside from home and factory building requirements, is believed to reflect Government "pump priming." Oil-country goods' specifications which had leveled off during the past few weeks, showed some signs of improvement during the past few days.

CLEVELAND and YOUNGSTOWN producers report that export inquiry is heavier both for line pipe and casting. On the domestic side standard pipe for construction and small connecting pipe line contracts have resulted in steady incoming orders so far this month.

TIN PLATE

... Price Announcement is expected momentarily

THE long awaited price announcement on tin plate is expected momentarily and will in all probability reflect a reduction, possibly not more than \$2 a ton. Some tin plate producers have quite large stocks of plate which will be released as soon as new tin plate prices become effective. This action will result in a considerable

increase of tin plate shipments during the last two months of this year. With can companies' inventories cut to the bone, a substantial increase in new tin plate business is expected to materialize as stocks are now quite low. Meanwhile, tin plate operations for the country are estimated at approximately 31 per cent.

BOLTS, NUTS, RIVETS

... Automotive releases are principal support

BOLT and nut business at PITTSBURGH was slightly better during the past few days, but the improvement springs mainly from automotive releases. Structural shop demand is just about holding its own, and there is little or no support from railroads. Orders from shipbuilding companies have been a little bit heavier recently. Prices continue spotty at some locations throughout the country.

At CLEVELAND production is centered upon filling releases from the automotive industry. Sales to other consumers and to jobbers are just about holding even with last month. The recently effective higher cap screw prices are reported as firmly maintained.

MERCHANT BARS

... Gains in orders largely traceable to motor car industry

FURTHER increases have been registered in hot-rolled bar bookings at PITTSBURGH, the major part of which is traceable to the automotive industry. Railroad and farm implement buying are practically non-existent from a tonnage standpoint. There are recent indications that home appliance makers will increase their requirements somewhat after having been "in and out" buyers of small quantities during the past year or so.

Automobile buying of bars is also good at CHICAGO, where mills are booking business from farm equipment and general manufacturing plants.

Demand at CLEVELAND continues to expand slowly, led by requirements of forgers. Prospects are encouraging for additional purchases by implement manufacturers to round out their assembly programs. Freight car repair work has called for moderate amounts recently.

... PIPE LINES ...

General Purchasing Officer, Panama Canal, Washington, asks bids until Nov. 15 for 62,480 ft. of galvanized welded steel pipe, 1000 ft. of welded steel pipe; also for 4800 ft. of cast iron soil pipe and 300 ft. of cast iron water pipe; cast iron soil pipe fittings, etc. (Schedule 3395).

Glenn H. McCarthy, Inc., Houston, Tex., plans steel pipe lines for natural gas distribution system at Beaumont, Tex., including welded steel pipe line for connection with supply source, control station and other operating facilities. Work is scheduled to begin soon under direction of George B. Morgan, Beaumont, local representative for company.

Northern Natural Gas Co., St. Paul, Minn., has been directed by Federal Power Commission, Washington, to show cause by Dec. 1, why it should not extend its welded steel pipe lines with lateral lines and operating facilities to serve the territory in which Kansas Pipe Line & Gas Co., Norton, Kan., proposes to construct a 1040-mile main welded steel pipe line for natural gas transmission, including branch pipe lines aggregating about 1306 miles for service to different communities. Application for permission for last noted project is now pending before commission, with estimated cost placed at \$21,470,000. The show cause order is for commission to determine whether Northern company cannot provide pipe lines and adequate facilities to afford natural gas service in identical territory covered in proposal of Kansas company.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Nov. 15 for steel pipe and tubing for Brooklyn and Philadelphia yards (Schedule 4839).

Henderson, Ky., has let contract to Municipal Service Co., Dwight Building, Kansas City, Mo., for about 35 miles of 2 to 6-in. welded steel pipe for municipal natural gas distributing system, and 1½-in. service lines in different parts of municipality, at \$167,325. Installation also will include three regulator stations and other operating facilities. Fund of \$201,818 has been arranged for entire project, of which \$90,818 is a Federal grant. Westcott & Thornton, Gary Building, Owensboro, Ky., are consulting engineers.

. GREAT BRITAIN .

... Iron and steel situation in England improving.

LONDON, Nov. 9—Continental steel demand is quieter, but still fairly good, with the largest request for merchant bars and thick sheets.

As a result of the visit of members of the Raw Steel Cartel to Scandinavia several agreements, which expired June 30, are now prolonged for a further period. The International Thin Sheet Cartel met in Brussels on Tuesday and Wednesday of this week.

The British iron and steel position is improving slowly. At the Gjers mills two hematite furnaces were relighted after six months' complete idleness, reflecting increased demand and diminution of stocks. Cleveland foundry is moving better, but no commencement of production is yet envisaged.

Steel makers are more optimistic, though still cautious about the future. Export demand is mostly Empire and is insufficient to provide a real stimulus, but home air raid precautions and defense are expected to involve large quantities of structural and sheet steel.

The tin plate market is moderately active, especially home deliveries up to the end of March. Works are operating at over 50 per cent. Unfilled orders are around 2,500,000 base boxes.

Imports at Philadelphia

PHILADELPHIA.—During the past week the following iron and steel imports were received at Philadelphia: 51 tons of pig iron from the Netherlands; 23 tons of wire rods, 65 tons of steel tubes, 74 tons of steel forgings and 7 tons of steel bars from Sweden; 45 tons of steel bars, 16 tons of steel bands and 78 tons of structural shapes from Belgium; 8 tons of steel bars, 51 tons of steel bands and 39 tons of structural shapes from France.

Weekly Bookings of Construction Steel

	Week Ended				Year to Date	
	Nov. 9, 1938	Nov. 1, 1938	Oct. 11, 1938	Nov. 9, 1937	1938	1937
Fabricated structural steel awards	23,725	18,400	22,200	35,000	769,945	957,585
Fabricated plate awards	1,600	710	0	14,120	115,820	124,165
Steel sheet piling awards	5,436	0	0	20,000	43,301	57,580
Reinforcing bar awards	6,400	9,925	3,850	8,600	288,490	248,640
Total Letting of Construction Steel..	37,161	29,035	26,050	77,720	1,217,556	1,387,970

FABRICATED STEEL

... Lettings in better volume at 23,725 tons ... New projects advance to 27,000 tons from 21,000 tons last week ... Plate awards 1600 tons.

NORTH ATLANTIC STATES

7500 Tons, New York, Netherlands building, Rockefeller Center, to Bethlehem Steel Co., Bethlehem, Pa., through Hegeman Harris Co., New York.

4500 Tons, New York, three hangers, North Beach airport, to Bethlehem Steel Co., Bethlehem, Pa.

2200 Tons, Brooklyn, building No. 4, Navy Yard, to American Bridge Co., Pittsburgh, through Hudson Contracting Co., New York.

1000 Tons, Long Island City, N. Y., Queens Bridge housing project, to Simon Holland & Son, New York; Cauldwell Wingate Co., general contractor.

530 Tons, Herkimer County, N. Y., State highway bridge, to Phoenix Bridge Co., Phoenixville, Pa.; Green Island Construction Co., general contractor.

315 Tons, Hornell, N. Y., State bridge RC-3998, to American Bridge Co., Pittsburgh.

300 Tons, State of Massachusetts, bridges, to American Bridge Co., Pittsburgh; Daniel O'Connell's Sons, general contractors.

285 Tons, New York, bridges, East 58th Street and Claremont Parkway, to Phoenix Bridge Co., Phoenixville, Pa.; Cayuga Construction Co., general contractor.

235 Tons, Millinocket, Me., transmission towers for Great Northern Paper Co., to American Bridge Co., Pittsburgh.

215 Tons, New York, building between hangars and pump station, North Beach Airport, to Dreier Structural Steel Co., New York.

200 Tons, Nashua, N. H., city hall and police station, to Lyon Iron Works, Manchester, N. H.

185 Tons, Philadelphia, Ortlieb Brewery addition, to Bethlehem Steel Co., Bethlehem, Pa.

170 Tons, Barre, Mass., beam bridges, to American Bridge Co., Pittsburgh; C. & R. Construction Co., general contractor.

155 Tons, Reading, Pa., machine shop for Birdsboro Steel Foundry & Machine Co., to Reading Steel Products Co., Reading, Pa.

150 Tons, New York, curb angles for Procurement Division, to Phoenix Bridge Co., Phoenixville, Pa.

145 Tons, Whitehill, Pa., power house, to Reading Steel Products Co., Reading, Pa.; through H. B. Alexander, general contractor.

140 Tons, Bayside, N. Y., public school No. 159, to Bethlehem Fabricators, Inc., Bethlehem, Pa.

135 Tons, Syracuse, N. Y., milk distributing plant, to Smith & Caffrey Co., Syracuse.

130 Tons, Brooklyn, laboratory building, Underhill Avenue, to Voepel Sons, Inc.; Thomas G. Sperling & Co., general contractors.

130 Tons, Parlin, N. J., process building for Hercules Powder Co., to Morris-Wheeler Co., Philadelphia.

125 Tons, Annapolis, Md., heating plant, to Frank M. Weaver Co., Lansdale, Pa.

120 Tons, Seaford, N. Y., grade school, to August Bellon, Inc., Rockaway Beach, N. Y.

115 Tons, Rockville Center, N. Y., warehouse, to August Bellon, Inc., Rockaway Beach, N. Y.

SOUTHWEST

1320 Tons, Grove, Okla., Grand River Dam Authority bridge, to Virginia Bridge Co., through S. E. Evans Construction Co.

475 Tons, Caldwell County, Tex., San Marcos River bridge; 345 tons to Mosher Steel Co., Dallas, Tex., 130 tons to Illinois Steel Bridge Co., Jacksonville, Ill.

CENTRAL STATES

2200 Tons, Chicago, Austin Avenue subway, to American Bridge Co., Pittsburgh; through Overland Construction Co., general contractor.

400 Tons, Fairfield, Ohio, State highway bridge, to Bethlehem Steel Co.

200 Tons, Richmond, Ind., auditorium and gym building for Board of Education, to Bethlehem Steel Co., Bethlehem, Pa.

150 Tons, Sidney, Ohio, building for Monarch Machine Tool Co., to Burger Iron Works, Akron; through Green & Sawyer, Lima, Ohio, general contractors.

NEW STRUCTURAL STEEL PROJECTS

NORTH ATLANTIC STATES

7000 Tons, Brooklyn, contract No. 8, Meeker Avenue bridge; bids received by Department of Public Works until Nov. 15.

1500 Tons, Buffalo, Kenmore High School; bids Nov. 15.

900 Tons, Rocky Hill, Conn., Veterans' Home buildings.

800 Tons, New York, public school No. 194.

400 Tons, Southport, Me., State bridge.

300 Tons, Highbridge Park, N. J., approach, George Washington bridge; Wood & Hagen, New York, low bidders.

300 Tons, Southbury, Conn., State school and hospital buildings.

300 Tons, Niantic, Conn., inmate building No. 2 and garage.

250 Tons, Newtown, Conn., hospital buildings.

250 Tons, Southport-Boothbay Harbor, Me., bridge.

225 Tons, Elmira, N. Y., State prison cell blocks.

200 Tons, school, Tonawanda, N. Y.; bids Nov. 17.

125 Tons, New York, freight house, Bronx Terminal Market, for Procurement Division, Treasury Department.

125 Tons, Albany, N. Y., warehouse for Simmons Machine Tool Co.

SOUTH AND SOUTHWEST

600 Tons, Grand River Dam, Okla., elevation for St. Louis-San Francisco Railway; bids Nov. 18.

325 Tons, College Station, Tex., college dining hall.

200 Tons, Fort Knox, Ky., children's school for Government.

CENTRAL STATES

2500 Tons, Brownsville, Neb., and Rockport, Mo., Missouri River bridge; bids Nov. 18.

1300 Tons, Kansas City, truss spans, Kansas River bridge.

1200 Tons, Kansas City, Kan., Wyandotte County, bridge; bids due Nov. 22.

1000 Tons, Kansas City, repairs to Kaw River bridge.

500 Tons, East Chicago, Ind., Washington High School.

300 Tons, State of Illinois, highway work; bids Nov. 18.

185 Tons, Pike County, Ohio, State highway project in Pee Pee Township; bids Nov. 22.

115 Tons, Williams County, Ohio, State bridge; W. M. Brode Co., Newcomers-town, general contractor.

WESTERN STATES

5245 Tons, Seattle, Wash., Lake Washington Bridge; bids Nov. 29 to Washington Toll Bridge Authority, Olympia.

700 Tons, San Diego, Cal., Navy assembly building.

450 Tons, Woodland, Wash., Lewis River bridge; bids in.

420 Tons, Bakersfield, Cal., overcrossing; bids Nov. 23.

400 Tons, Dillard, Ore., South Dillard Bridge; bids Nov. 18.

200 Tons, Glendale, Cal., San Fernando Road bridge for United States Engineers.

200 Tons, Sugar City, Idaho, State overhead crossing.

160 Tons, Brewster, Wash., undercrossing; bids Nov. 22.

120 Tons, Klamath Falls, Ore., undercrossing; bids Nov. 17.

FABRICATED PLATES

AWARDS

1600 Tons, Boston, 42-in. pipe for Procurement Division, to Walsh Holyoke Steam Boiler Works, Holyoke, Mass.

SHEET PILING

AWARDS

2556 Tons, Midway Island, Cal., United States Engineers, to Columbia Steel Co.

1700 Tons, Milwaukee, bulkhead for city, to Carnegie-Illinois Steel Corp., Pittsburgh.

850 Tons, Atlantic City, N. J., coast guard station, to Carnegie-Illinois Steel Corp.

230 Tons, Groveport, Ohio, station for Columbus & Southern Ohio Electric Co., to Bethlehem Steel Co., Bethlehem, Pa.

100 Tons, Cleveland, East approach to Main Street Bridge, to Bethlehem Steel Co., Bethlehem, Pa., from Johnson Foundation Co., Cleveland, sub-contractor.

NEW PROJECTS

1000 Tons, Long Beach, Cal., piling for Ford Motor Co. plant; bids under advisement.

960 Tons, New York, section 3, East River Drive; bids to be taken shortly by president, Borough of Manhattan.

500 Tons, Newport, Ark., flood wall.

400 Tons, Cleveland, Cuyahoga River straightening; L. A. Wells Construction Co., Cleveland, general contractor.

300 Tons, Marked Tree, Ark., drainage project.

200 Tons, Morgan County, Ohio, project No. 270; Merry & Cislser, Caldwell, Ohio, low bidder.

114 Tons, Blaisdell, Ariz., Gila project (Invitation 24665-A); bids opened.

NON-FERROUS

. . . Routine carlot business accounts for bulk of the week's sales . . . Zinc stocks decline 6615 tons in October.

AWAITING the outcome of the elections, non-ferrous buyers exercised extreme caution in making purchases in the past week and sales, consequently, were very light. As yet there has been no reaction in the domestic market to the outcome of the voting, but foreign traders look upon the result as "constructive." This feeling abroad found reflection this morning in the better volume of demand for copper and higher prices. Wednesday's foreign copper price was 11.30c. per lb., c.i.f., usual base ports, as compared with 11.20c. on Monday, 11.15c. on Tues-

day a week ago. Most of the domestic copper bookings in the past week were routine inter-company transactions, placed at the present unchanged price of 11.25c. per lb., Connecticut Valley.

ZINC sales increased to 1903 tons in the past week from 1535 tons in the preceding week. This small gain, together with the drop of 6615 tons in stocks in October has added considerable strength to the current price of 5.05c. per lb., East St. Louis. While stocks are still topheavy, the month's decline was the fifth consecutive drop this year and brings the reserve supply down to 124,128 tons, the lowest since March. The bulk of the week's sales were for spot delivery. The absence of any sizable forward buying for the past several weeks has caused sellers to believe that a heavy potential demand has been built up.

LEAD bookings in the past week totaled about 6700 tons, as compared

with 8500 tons in the previous week and 14,000 tons three weeks ago. The week's activity covered a small amount of routine carlot purchases and the usual average-price business which is placed the first of each month. Continued improvement in the lead consuming industries and an advance in the foreign price to 3.52c. per lb. (Wednesday's spot price in London) from 3.41c. a week ago, has provided the present unchanged domestic quotation of 4.95c. per lb., St. Louis, with a very firm undertone.

Tin

TIN buyers showed little interest in the market prior to election day, but on Wednesday, accompanying the rising stock market, both sales volume and prices spurted upward. Today's Straits metal price of 46.625c. per lb., New York, is 0.375c. above Monday's price and the pre-holiday price and 0.15c. above the price of a week ago. Lack of improvement in the tin plate industry continues to act as a damper on an otherwise slightly bullish market.

Non-Ferrous Average Prices

The average prices of the major non-ferrous metals in October, as based on quotations appearing in THE IRON AGE, were as follows:

	Per lb.
Electrolytic copper, Conn. Valley	10.99c.
Lake copper, Eastern delivery	11.115c.
Straits tin, spot, New York	45.25c.
Zinc, East St. Louis	5.01c.
Zinc, New York	5.40c.
Lead, St. Louis	4.95c.
Lead, New York	5.10c.

NON-FERROUS PRICES

Cents per lb. for early delivery

	Nov. 2	Nov. 3	Nov. 4	Nov. 5	Nov. 7	Nov. 9
Electro, copper ¹	11.25	11.25	11.25	11.25	11.25	11.25
Lake copper	11.375	11.375	11.375	11.375	11.375	11.375
Straits, tin, New York	46.10	46.35	46.35	....	46.25	46.625
Zinc, East St. Louis ²	5.05	5.05	5.05	5.05	5.05	5.05
Lead, St. Louis ³	4.95	4.95	4.95	4.95	4.95	4.95

¹ Delivered Conn. Valley, deduct ¼c. for New York delivery. ² Add 0.39c. for New York delivery. ³ Add 0.15c. for New York delivery.

Warehouse Prices

Base per lb., Delivered

New York Cleveland

Tin, Straits pig	47.75c.	50.00c.
Copper, lake	12.25c.	12.375c.
Copper, electro	11.50c.	12.375c.
Copper, castings	11.25c.	11.875c.
*Copper sheets, hot-rolled	19.375c.	19.375c.
*High brass sheets	17.50c.	17.50c.
*Seamless brass tubes	20.25c.	20.25c.
*Seamless copper tubes	19.875c.	19.875c.
*Brass rods	13.375c.	13.375c.
Zinc slabs	6.50c.	7.50c.
Zinc sheets, No. 9 casks	10.50c.	12.10c.
Lead, American pig	5.875c.	5.60c.
Lead, bar	6.625c.	8.75c.
Lead sheets, cut	8.25c.	8.25c.
Antimony, Asiatic	15.00c.	17.75c.
Alum., virgin, 99 per cent plus	22.50c.	22.50c.
Alum., No. 1 remelt, 98 to 99 per cent	19.50c.	19.50c.
Solder, ½ and ¾	29.375c.	30.00c.
Babbitt metal, commercial grade	20.25c.	22.75c.

* These prices, which are also for delivery from Chicago warehouses, are quoted with the following percentages allowed off for extras: on copper sheets, 33 1/3; on brass sheets and rods, 40, and on brass and copper tubes, 25.

Old Metals Per Lb., New York

Buying prices are paid by dealers for miscellaneous lots from smaller accumulators. Selling prices are those charged to consumers after the metal has been prepared for their uses.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, hvy. crucible	8.75c.	9.50c.
Copper, hvy. and wire	7.75c.	8.25c.
Copper, light and bottoms	7.00c.	7.25c.
Brass, heavy	4.75c.	5.25c.
Brass, light	3.875c.	4.625c.
Hvy. machine composition	7.00c.	8.50c.
No. 1 yel. brass turnings	4.50c.	5.00c.
No. 1 red brass or compos. turnings	6.75c.	7.375c.
Lead, heavy	4.00c.	4.875c.
Cast aluminum	7.50c.	8.75c.
Sheet aluminum	11.75c.	13.25c.
Zinc	2.50c.	3.75c.

Miscellaneous Non-Ferrous Prices

ALUMINUM, delivered: virgin 99 per cent plus, 20c.-21c. a lb.; No. 12 remelt, No. 2 standard, 19c.-19.50c. a lb. NICKEL, electrolytic, 35c.-36c. a lb. base refinery, lots of 2 tons or more. ANTIMONY, prompt, New York; Asiatic, 14c. a lb., f.o.b.; American, 12.25c. a lb. QUICKSILVER, \$73-\$74 per flask of 76 lb. BRASS INGOTS, commercial 85-5-5-5, 11.625c. a lb. lcl.

. . . CANADA . . .

. . . Situation showing signs of betterment.

TORONTO, Nov. 8—Building trades are responsible for a fair volume of business and demand for structural steel and reinforcing bars is sufficient to enable producers to operate at a rate comparable with last year. The automotive industry has started purchasing for 1939 car production. The mining industry has taken a decided turn for the better. Agricultural implement makers report better business and state that prospective orders from the Canadian West appear better than for several years past.

Scrap prices are firm, with some dealers offering slightly above list for heavy melting and cast scrap. Current price for heavy melting is \$10 to \$11 a ton.

IRON AND STEEL SCRAP

... Scrap prices slow to show influence of sharp advance in ingot rate ... Composite price advances to \$14.50.

NOV. 9.—Prices for No. 1 heavy melting steel remain unchanged from previous quotations in most districts, largely because of the lack of any significant purchases. At Chicago, the top price is the same after an increase in the average price for No. 1 of 75c. the week before, but many other items on the list have been affected in the upward direction this week. St. Louis prices are stronger, based on a 7500-ton sale of No. 2 steel. At Pittsburgh No. 1 melting is up 25c. a ton and a strong undertone persists, but at Philadelphia consumers are showing no interest in further commitments. Meanwhile, Cleveland is waiting for a signal from Pittsburgh before a further advance is indicated, following a sharp boost two weeks ago, and a similar situation is apparent at Youngstown. As a result, the composite price of No. 1 steel is unchanged from last week at \$14.42.

Early November purchases by Japan totaled 150,000 tons. The price was around \$14.50 f.a.s., Eastern seaboard. Broker buying prices are unchanged at the principal ports.

Pittsburgh

Although No. 1 heavy melting steel in small quantities has been sold during the past week into consumption at \$14.50, \$15.25 and higher has been paid by brokers for delivery at other points in the district. The situation presents an apparent mixup since some brokers in the immediate Pittsburgh district are able to cover at \$14.50 on No. 1 while a higher price is being obtained for delivery to other points in the district. No. 1 heavy melting is up 25c. a ton this week being quotable at \$14.75 to \$15.25 which is considered a representative range covering present conditions. Meanwhile, the market grows stronger.

Chicago

Top market on heavy melting steel continues to be \$14, several local mills having purchased at that level. Operations are still rising and some additional improvement may be seen before the year's end. Railroad lists are expected some time after Nov. 15. A possibility exists that some scrap may be brought into this district by water from upper lake ports to fill existing orders but as yet it is understood that no such movement has started.

Philadelphia

With steel-making operations here running behind the country's average, local scrap consumers are still disinclined to make additional commitments. Domestic shipments on old orders are spotty and in light volume, and export is currently taking the bulk of the scrap being processed. One boat is loading at Port Richmond and a boat is at Wilmington also taking on a cargo. Another boat is due within a week to take on a European cargo. No. 1 and No. 2 continue to bring \$14 and \$13 respectively at Port Richmond, with desirable lots commanding slight premiums. The November Budd list of 3500 tons of bundles apparently has been divided among two or even three purchasers, the bid prices being estimated as 25c. to 50c. a ton better than those appearing for the October list.

Cleveland

With the local market stabilized at a higher level through recent mill purchases, activity is awaited in other districts, particularly in the Pittsburgh area. Movement of scrap by water continues brisk. Last week two boatloads of automotive bundles were among the vessel arrivals from Michigan.

Youngstown

The market continues strong here, reflecting mill purchases over the past month at several points in the valley. A reduction in open hearths this week at one city has been more than counterbalanced by resumptions elsewhere in this district. Action in other nearby districts is awaited.

Buffalo

Small lots of cast scrap continue to move at present prices, but no additional sales have been reported this week in other lines. No. 1 heavy melting steel remains steady at \$14 to \$14.50, with No. 2 material \$2 under that price. With a decrease in its operations recorded this week, the largest consumer in the district has as yet given no outward indication of its probable re-entry into the market.

St. Louis

An East Side steel mill bought 7500 tons of No. 2 heavy melting steel for shipment over the next 60 days, resulting in a stronger market, and increase of several items from 25c. to \$1 a ton. Dealers report that inquiries for supplies are increasing. The Missouri Pacific Railway had a list of 970 tons, which closed Tuesday.

Cincinnati

Although a few items, like sheet clippings are freer, the district old materials market is without noticeable trend. Or-

dering is for small amounts, fairly well divided between steel and cast items. Strength indicated in other areas and better mill operations in Southern Ohio tend to give better undertone to the district market.

Detroit

Iron and steel scrap prices in the Detroit area are unchanged. A strong undercurrent of optimism in the trade is based for the most part on generalities. So far there has been no buying by the major consumer in this area. The principal activity during the past week was the sale of some heavy busheling to an out-of-town mill. This material was moved by boat. Possibility that the mild weather and a late closing of navigation may move more scrap from Detroit and thereby induce mill buying is seen, however.

Boston

Interest still centers in the export market, and bids fair to continue so because part of the recent tonnage purchased by Japan will be shipped from here, and exporters still have old orders to various European countries to be filled. A boat is loading 2400 tons here, having taken on 4000 tons at Portland, Me. Another boat is loading 7000 tons, and a third boat 3000 tons, having taken a similar tonnage on at Providence for Japan. A boat is now loading several thousand tons at Providence for Japan, and another is shortly expected at Portland to load a round tonnage of rails. A boat has left here with 7219 tons for Rotterdam. Exporters say No. 1 heavy melting steel is becoming scarce and prices for it are very strong. However, one exporter the past week managed to buy a tonnage at \$13 a ton delivered dock, a price slightly under the previous low quotation.

New York

The Japanese tonnage purchased last week totaled about 150,000 tons. The price paid at Eastern seaboard was around \$14.50 f.a.s. No new European business has come in since the last order of 40,000 tons for Hungary. Meanwhile, buying prices are being maintained in line with recent selling prices of \$14.50 to \$15, and the going price for No. 1 heavy melting steel delivered to barges is \$11.50, although occasionally one hears of \$12 being offered. Domestic shipments into eastern Pennsylvania continue very light, and many prices for material on cars are largely nominal.

Pittsburgh Steel Buys National Supply Stock

PITTSBURGH.—Pittsburgh Steel Co. will acquire 120,000 shares or about 7 per cent of the total voting stock of National Supply Co. from Pennsylvania Industries Corp. in exchange for an undisclosed amount of Pittsburgh Steel Co. prior preferred and common stock, according to Henry A. Roemer, president. Mr. Roemer pointed out that "no further acquisition of National Supply Co. stock is contemplated."

Iron and Steel Scrap Prices

PITTSBURGH

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	\$14.75 to \$15.25
Railroad hvy. mltng.	15.75 to 16.25
No. 2 hvy. mltng. steel	13.75 to 14.25
Scrap rails	16.00 to 16.50
Rails 3 ft. and under.	17.00 to 17.50
Comp. sheet steel	14.75 to 15.25
Hand bundled sheets.	13.75 to 14.25
Hvy. steel axle turn.	13.50 to 14.00
Machine shop turn.	9.75 to 10.25
Short shov. turn.	9.75 to 10.25
Mixed bor. & turn.	8.25 to 8.75
Cast iron borings.	8.25 to 8.75
Cast iron carwheels.	14.50 to 15.00
Hvy. breakable cast.	12.50 to 13.00
No. 1 cupola cast.	15.25 to 15.75
RR. knuckles & cplrs.	16.50 to 17.00
Rail coil & leaf springs	16.50 to 17.00
Rolled steel wheels.	16.50 to 17.00
Low phos. billet crops.	17.50 to 18.00
Low phos. punchings.	16.50 to 17.00
Low phos. plate	16.50 to 17.00

PHILADELPHIA

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	\$14.50 to \$15.00
No. 2 hvy. mltng. steel.	13.00 to 13.50
Hydraulic bund., new.	14.50 to 15.00
Hydraulic bund., old.	11.50 to 12.00
Steel rails for rolling.	17.00 to 17.50
Cast iron carwheels.	16.50 to 17.00
Hvy. breakable cast.	16.00 to 16.50
No. 1 cast	16.50 to 17.00
Stove plate (steel wks.)	13.00 to 13.50
Railroad malleable	15.50 to 16.00
Machine shop turn.	8.00 to 8.50
No. 1 blast furnace.	6.50 to 7.00
Cast borings	6.50 to 7.00
Heavy axle turnings.	10.00 to 10.50
No. 1 low phos. hvy.	16.50 to 17.00
Couplers & knuckles.	16.50 to 17.00
Rolled steel wheels	16.50 to 17.00
Steel axles	21.50 to 22.00
Shafting	19.50 to 20.00
No. 1 RR. wrought.	15.00 to 15.50
Spec. iron & steel pipe	12.00 to 12.50
No. 1 forge fire	11.00 to 11.50
Cast borings (chem.)	9.50 to 10.00

CHICAGO

Delivered to Chicago district consumers:

Per Gross Ton	
Hvy. mltng. steel	\$13.50 to \$14.00
Auto. hvy. mltng. steel	
alloy free	\$12.25 to \$12.75
No. 2 alloy steel	11.50 to 12.00
Shoveling steel	13.50 to 14.00
Factory bundles	12.50 to 13.00
Dealers' bundles	11.50 to 12.00
Drop forge flashings.	11.25 to 11.75
No. 1 busheling	12.25 to 12.75
No. 2 busheling, old.	6.00 to 6.50
Rolled carwheels	15.00 to 15.50
Railroad tires, cut.	15.50 to 16.00
Railroad leaf springs.	15.50 to 16.00
Steel coup. & knuckles	15.00 to 15.50
Axle turnings	12.50 to 13.00
Coil springs	17.00 to 17.50
Axle turn. (elec.)	13.00 to 13.50
Low phos. punchings.	16.00 to 16.50
Low phos. plates 12 in. and under	15.50 to 16.00
Cast iron borings	5.50 to 6.00
Short shov. turn.	6.50 to 7.00
Machine shop turn.	6.50 to 7.00
Rerolling rails	17.00 to 17.50
Steel rails under 3 ft.	16.00 to 16.50
Steel rails under 2 ft.	16.50 to 17.00
Angle bars, steel	15.00 to 15.50
Cast iron carwheels.	13.00
Railroad malleable	15.00 to 15.50
Agric. malleable	11.50 to 12.00
Per Net Ton	
Iron car axles	19.50 to 20.00
Steel car axles	18.50 to 19.00
Locomotive tires	15.50 to 16.00
Pipes and flues	9.50 to 10.00
No. 1 machinery cast.	12.50 to 13.00
Clean auto. cast	12.50 to 13.00
No. 1 railroad cast.	11.50 to 12.00
No. 1 agric. cast.	10.50 to 11.00
Stove plate	8.50 to 9.00
Grate bars	8.50 to 9.00
Brake shoes	9.50 to 10.00

YOUNGSTOWN

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	\$14.50 to \$15.00
No. 2 hvy. mltng. steel.	13.50 to 14.00
Low phos. plate	15.50 to 16.00
No. 1 busheling	13.50 to 14.00
Hydraulic bundles	14.00 to 14.50
Machine shop turn.	10.00 to 10.50

CLEVELAND

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	\$13.50 to \$14.00
No. 2 hvy. mltng. steel.	12.50 to 13.00
Comp. sheet steel	12.50 to 13.00
Light bund. stampings	9.50 to 10.00
Drop forge flashings.	11.50 to 12.00
Machine shop turn.	7.00 to 7.50
Short shov. turn.	7.50 to 8.00
No. 1 busheling	11.50 to 12.00
Steel axle turnings.	10.00 to 10.50
Low phos. billet and bloom crops	17.50 to 18.00
Cast iron borings	7.75 to 8.25
Mixed bor. & turn.	7.75 to 8.25
No. 2 busheling	7.75 to 8.25
No. 1 cast	16.50 to 17.00
Railroad grate bars	9.50 to 10.00
Stove plate	10.00 to 10.50
Rails under 3 ft.	19.00 to 19.50
Rails for rolling	17.00 to 17.50
Railroad malleable	15.00 to 15.50
Cast iron carwheels	14.00 to 14.50

BUFFALO

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	\$14.00 to \$14.50
No. 2 hvy. mltng. steel.	12.00 to 12.50
Scrap rails	15.00 to 15.50
New hvy. bndled sheets	12.00 to 12.50
Old hydraul. bundles.	10.50 to 11.00
Drop forge flashings.	12.00 to 12.50
No. 1 busheling	12.00 to 12.50
Hvy. axle turnings	10.50 to 11.00
Machine shop turn.	6.75 to 7.25
Knuckles & couplers.	16.50 to 17.00
Coil & leaf springs.	16.50 to 17.00
Rolled steel wheels.	16.00 to 16.50
Low phos. billet crops.	15.50 to 16.00
Shov. turnings	8.75 to 9.25
Mixed bor. & turn.	7.50 to 8.00
Cast iron borings.	8.00 to 8.50
Steel car axles	16.50 to 17.00
No. 1 machinery cast.	15.50 to 16.00
No. 1 cupola cast.	14.50 to 15.00
Stove plate	13.00 to 13.50
Steel rails under 3 ft.	17.50 to 18.00
Cast iron carwheels.	13.50 to 14.00
Railroad malleable	14.50 to 15.00
Chemical borings	8.50 to 9.00

ST. LOUIS

Dealers' buying prices per gross ton delivered to consumer:

Selected hvy. melting.	\$13.25 to \$13.75
No. 1 hvy. melting.	13.25 to 13.75
No. 2 hvy. melting.	12.25 to 12.75
No. 1 locomotive tires.	13.25 to 13.75
Misc. stand. sec. rails.	12.75 to 13.25
Railroad springs	15.00 to 15.50
Bundled sheets	8.00 to 8.50
No. 1 busheling	7.50 to 8.00
Cast. bor. & turn.	4.00 to 4.50
Machine shop turn.	4.50 to 5.00
Heavy turnings	9.00 to 9.50
Rails for rolling	16.50 to 17.00
Steel car axles	17.50 to 18.00
No. 1 RR. wrought.	10.75 to 11.25
No. 2 RR. wrought.	13.25 to 13.75
Steel rails under 3 ft.	15.50 to 16.00
Steel angle bars	14.00 to 14.50
Cast iron carwheels.	14.00 to 14.50
No. 1 machinery cast.	14.25 to 14.75
Railroad malleable	12.00 to 12.50
No. 1 railroad cast.	11.00 to 11.50
Stove plate	9.00 to 9.50
Grate bars	8.50 to 9.00
Brake shoes	10.00 to 10.50

CINCINNATI

Dealers' buying prices per gross ton at yards:

No. 1 hvy. mltng. steel.	\$11.00 to \$11.50
No. 2 hvy. mltng. steel.	8.75 to 9.50
Scrap rails for mltng.	15.00 to 15.50
Loose sheet clippings.	6.50 to 7.00
Hydrau. b'ndled sheets	10.00 to 10.50
Cast iron borings	4.00 to 4.50
Machine shop turn.	5.25 to 5.75
No. 1 busheling	7.75 to 8.25
No. 2 busheling	2.50 to 3.00
Rails for rolling	17.00 to 17.50
No. 1 locomotive tires.	13.75 to 14.25
Short rails	17.50 to 18.00
Cast iron carwheels.	12.25 to 12.75
No. 1 machinery cast.	10.50 to 11.00
No. 1 railroad cast.	12.75 to 13.25
Burnt cast	6.75 to 7.25
Stove plate	6.75 to 7.25
Agricul. malleable	11.25 to 11.75
Railroad malleable	13.75 to 14.25
Mixed hvy. cast.	10.25 to 10.75

BIRMINGHAM

Per gross ton delivered to consumer:

Hvy. melting steel.	\$12.50 to \$14.00
Scrap steel rails	14.50 to 15.00
Short shov. turnings.	7.50 to 8.10
Stove plate	9.00 to 10.00
Steel axles	15.00 to 16.00
Iron axles	15.00 to 16.00
No. 1 RR. wrought	10.00
Rails for rolling	16.00 to 16.50
No. 1 cast	14.50
Tramcar wheels	14.00

DETROIT

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.	\$10.00 to \$10.50
No. 2 hvy. mltng. steel.	8.50 to 9.00
Borings and turnings.	5.50 to 6.00
Long turnings	5.50 to 6.00
Short shov. turnings.	6.50 to 7.00
No. 1 machinery cast.	12.00 to 12.50
Automotive cast	13.00 to 13.50
Hvy. breakable cast.	9.50 to 10.00
Hydraul. comp. sheets.	11.75 to 12.25
Stove plate	8.00 to 8.50
New factory bushel.	10.75 to 11.25
Old No. 2 busheling.	3.00 to 3.50
Sheet clippings	9.00 to 9.50
Flashings	9.00 to 9.50
Low phos. plate scrap	11.75 to 12.25

NEW YORK

Dealers' buying prices per gross ton on cars:

No. 1 hvy. mltng. steel.	\$10.00 to \$10.50
No. 2 hvy. mltng. steel.	8.50 to 9.00
Hvy. breakable cast.	12.00 to 12.50
No. 1 machinery cast.	11.50 to 12.00
No. 2 cast	9.50 to 10.00
Stove plate	9.00 to 9.50
Steel car axles	20.00 to 20.50
Shafting	15.00 to 15.50
No. 1 RR. wrought.	11.00 to 11.50
No. 1 wrought long.	9.50 to 10.00
Spec. iron & steel pipe	8.50 to 9.00
Rails for rolling	16.00 to 16.50
Clean steel turnings*	3.50 to 4.00
Cast borings*	3.00 to 3.50
No. 1 blast furnace.	3.00 to 3.50
Cast borings (chem.)	9.50 to 10.00
Unprepared yard scrap	5.00 to 5.50
Light iron	3.00 to 3.50
Per gross ton, delivered local foundries:	
No. 1 machn. cast†	\$13.50 to \$14.00
No. 2 cast†	10.50 to 11.00

* \$1.50 less for truck loads.

† Northern N. J. prices are \$2 to \$2.50 higher.

BOSTON

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.	Nominal
Scrap rails	Nominal
No. 2 steel	Nominal
Breakable cast	10.15
Machine shop turn	3.38
Mixed bor. & turn.	2.00 to 2.25
Bun. skeleton long.	7.25
Shafting	10.25 to 10.50
Cast bor. chemical.	5.50 to 5.75
Per gross ton delivered consumers' yards:	
Textile cast	\$12.50 to \$14.50
No. 1 machine cast.	12.50 to 14.50

PACIFIC COAST

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	\$12.50 to \$14.00
No. 2 hvy. mltng. steel.	11.50 to 13.00

CANADA

Dealers' buying prices at their yards, per gross ton:

Toronto		Montreal	
No. 1 hvy. mltng. steel.	\$9.50	\$9.50	\$9.00
No. 2 hvy. mltng. steel.	8.00	7.50	
Mixed dealers steel	7.00	6.50	
Scrap pipe	5.50	5.00	
Steel turnings	4.50	4.00	
Cast borings	3.50	3.00	
Machinery cast	15.00	14.00	
Dealers cast	13.00	12.00	
Stove plate	11.00	10.50	

EXPORT

Dealers' buying prices per gross ton:

New York, truck lots, delivered, barges	
No. 1 hvy. mltng. steel.	\$11.50
No. 2 hvy. mltng. steel.	10.00
No. 2 cast	11.00
Stove plate	10.00 to 10.50

Boston on cars at Army Base or Mystic Wharf

No. 1 hvy. mltng. steel.	\$13.00 to \$13.50
No. 2 hvy. mltng. steel.	12.25 to 12.50
Rails (scrap)	13.25 to 13.50

Philadelphia, delivered alongside boats,

Port Richmond	
No. 1 hvy. mltng. steel.	\$14.00
No. 2 hvy. mltng. steel.	13.00

PRICES ON FINISHED AND SEMI-FINISHED IRON AND STEEL

SEMI-FINISHED STEEL

Billets, Blooms and Slabs

Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Buffalo, Birmingham, Sparrows Point (Rerolling only). Prices delivered Detroit are \$2 higher. F.o.b. Duluth, billets only, \$2 higher.

Per Gross Ton

Rerolling\$34.00
Forging quality 40.00

Sheet Bars

Pittsburgh, Chicago, Cleveland, Youngstown, Buffalo, Canton, Sparrows Point, Md.

Per Gross Ton

Open-hearth or besse-mer\$34.00

Skelp

Pittsburgh, Chicago, Youngstown, Coatesville, Pa., Sparrows Point, Md.

Per Lb.

Grooved, universal and sheared1.90c.

Wire Rods

(No. 5 to 9/32 in.)

Per Gross Ton

Pittsburgh, Chicago or Cleveland\$43.00
Worcester, Mass. 45.00
Birmingham 43.00
San Francisco 52.00
Rods over 9/32 in. or 47/64 in., inclusive, \$5 a ton over base.

SOFT STEEL BARS

Base per Lb.

Pittsburgh, Chicago, Gary, Cleveland, Buffalo and Birmingham 2.25c.
Detroit, delivered 2.35c.
Duluth 2.35c.
Philadelphia delivered 2.57c.
New York 2.59c.
On cars dock Gulf ports 2.60c.
On cars dock Pacific ports 2.85c.

RAIL STEEL BARS

(For merchant trade)

Pittsburgh, Chicago, Gary, Cleveland, Buffalo, Birmingham 2.10c.
On cars dock Tex. Gulf ports 2.45c.
On cars dock Pacific ports 2.70c.

BILLET STEEL REINFORCING BARS

(Straight lengths as quoted by distributors)

Pittsburgh, Chicago, Gary, Birmingham, Buffalo, Cleveland, Youngstown or Sparrows Pt. 1.90c. to 2.05c.
Detroit, delivered 2.00c. to 2.15c.
On cars dock Tex. Gulf ports 2.25c. to 2.40c.
On cars dock Pacific ports 2.50c.

RAIL STEEL REINFORCING BARS

(Straight lengths as quoted by distributors)

Pittsburgh, Chicago, Gary, Buffalo, Cleveland, Youngstown or Birmingham 1.75c. to 1.90c.
Detroit, delivered 1.85c. to 2.00c.
On cars dock Tex. Gulf ports 2.10c. to 2.25c.
On cars dock Pacific ports 2.35c.

Prices on reinforcing bars have been subject to concessions of \$3 a ton or more from above quotations.

IRON BARS

Chicago and Terre Haute 2.15c.
Pittsburgh (refined) 3.60c.

COLD FINISHED BARS AND SHAFTING*

Base per Lb.

Pittsburgh, Buffalo, Cleveland, Chicago and Gary 2.70c.
Detroit 2.75c.

* In quantities of 10,000 to 19,999 lb.

PLATES

Base per Lb.

Pittsburgh, Chicago, Gary, Birmingham, Sparrows Point, Cleveland, Youngstown, Coatesville, Claymont, Del. 2.10c.
*Philadelphia, del'd 2.15c.
*New York, del'd 2.29c.
On cars dock Gulf ports 2.45c.
On cars dock Pacific ports 2.60c.
Wrought iron plates, P't'g. 3.80c.

*Eastern prices subject to occasional concessions of \$2 a ton.

FLOOR PLATES

Pittsburgh or Chicago 3.35c.
New York, del'd 3.71c.
On cars dock Gulf ports 3.70c.
On cars dock Pacific ports 3.95c.

STRUCTURAL SHAPES

Base per Lb.

Pittsburgh, Chicago, Gary, Buffalo, Bethlehem or Birmingham 2.10c.
Philadelphia, del'd 2.215c.
New York, del'd 2.27c.
On cars dock Gulf ports 2.45c.
On cars dock Pacific ports 2.70c.

STEEL SHEET PILING

Base per Lb.

Pittsburgh, Chicago or Buffalo 2.40c.
On cars dock Gulf ports 2.85c.
On cars dock Pacific ports 2.90c.

RAILS AND TRACK SUPPLIES

F.o.b. Mill

Standard rails, heavier than 60 lb., per gross ton\$40.00
Angle bars, per 100 lb. 2.70

F.o.b. Basing Points

Light rails (from billets) per gross ton\$40.00
Light rails (from rail steel) per gross ton 39.00

Base per Lb.

Cut spikes 3.00c.
Screw spikes 4.55c.
Tie plates, steel 2.15c.
Tie plates, Pacific Coast ports. 2.25c.
Track bolts, to steam railroads 4.15c.
Track bolts to jobbers, all sizes (per 100 counts) 65-5

Basing points on light rails are Pittsburgh, Chicago and Birmingham; on spikes and tie plates, Pittsburgh, Chicago, Portsmouth, Ohio, Weirton, W. Va., St. Louis, Kansas City, Minneapolis, Colo., Birmingham and Pacific Coast ports; on tie plates alone, Steelton, Pa.; Buffalo; on spikes alone, Youngstown, Lebanon, Pa., Richmond, Va.

SHEETS**

PRICES F.O.B. UNLESS OTHERWISE NOTED

Hot Rolled

Base per Lb.

Pittsburgh, Gary, Birmingham, Buffalo, Sparrows Point, Cleveland, Youngstown, Middletown or Chicago15c.
Detroit, delivered 2.25c.
Philadelphia, delivered 2.32c.
Granite City 2.25c.
On cars dock Pacific ports 2.65c.
Wrought iron, Pittsburgh 4.25c.

Cold Rolled*

Pittsburgh, Gary, Buffalo, Youngstown, Cleveland, Middletown or Chicago 3.20c.
Detroit, delivered 3.30c.
Granite City 3.30c.
Philadelphia, delivered 3.52c.
On cars dock Pacific ports 3.80c.

* Mill run sheets are 10c. per 100 lb. less than base; and primes only, 25c. above base.

** The above are generally actual going prices, subject to change without notice and are \$6 a ton below published prices announced recently for fourth quarter delivery.

Galvanized Sheets, 24 Gage

Pittsburgh, Chicago, Gary, Sparrows Point, Buffalo, Middletown, Youngstown or Birmingham 3.50c.
Philadelphia, del'd 3.67c.
Granite City 3.60c.
On cars dock Pacific ports 4.00c.
Wrought iron Pittsburgh 6.10c.

Electrical Sheets

(F.o.b. Pittsburgh)

Base per Lb.

Field grade 3.20c.
Armature 3.55c.
Electrical 4.05c.
Special Motor 4.95c.
Special Dynamo 5.65c.
Transformer 6.15c.
Transformer Special 7.15c.
Transformer Extra Special 7.65c.

Silicon Strip in coils—Sheet price plus silicon sheet extra width extra plus 25c. per 100 lb. for coils. Pacific ports add 70c. a 100 lb.

Long Ternes

No. 24 unassorted 8-lb. coating f.o.b. Pittsburgh or Gary 3.95c.
F.o.b. cars dock Pacific ports. 4.65c.

Vitreous Enameling Stock, 20 Gage*

Pittsburgh, Chicago, Gary, Youngstown, Middletown or Cleveland 3.35c.
Detroit, del'd 3.15c.
Granite City 3.45c.
On cars dock Pacific ports 3.95c.

TIN MILL PRODUCTS

Black Plate

Pittsburgh, Chicago and Gary 3.15c.
Granite City 3.25c.
On cars dock Pacific ports, boxed 4.10c.

NOTE: No. 29 gage is heaviest in which tin mill black plate is sold. No. 28 and heavier taking sheet base. There are no gages which take the above base prices as extras are applicable in all cases.

Tin Plate

Per Base Box

Standard cokes, Pittsburgh, Chicago and Gary\$5.35
Standard cokes, Granite City... 5.45

Special Coated Manufacturing Ternes

Per Base Box

Pittsburgh\$4.65
Gary 4.65
Granite City 4.75

Roofing Terne Plate

(F.o.b. Pittsburgh)

(Per Package, 112 sheets, 20 x 28 in.)
8-lb. coating I.C.\$12.00
15-lb. coating I.C. 14.00
20-lb. coating I.C. 15.00
25-lb. coating I.C. 16.00
30-lb. coating I.C. 17.25
40-lb. coating I.C. 19.50

HOT ROLLED STRIP

Prices F.o.b. Unless Otherwise Noted

(Widths up to 12 in.)

Base per Lb.

Pittsburgh, Chicago, Gary, Cleveland, Middletown, Youngstown or Birmingham 2.15c.
Detroit, delivered 2.25c.

Cooperage Stock

Pittsburgh & Chicago 2.25c.

COLD ROLLED STRIP**

Base per Lb.

Pittsburgh, Youngstown or Cleveland 2.95c.
Chicago 3.05c.
Detroit, delivered 3.05c.
Worcester 3.15c.

* Carbon 0.25 and less.

Commodity Cold Rolled Strip

Pittsburgh, Youngstown, or Cleveland 3.10c.
Detroit, delivered 3.20c.
Worcester 3.50c.

COLD ROLLED SPRING STEEL

Pittsburgh and Cleveland Worcester

Carbon 0.26-0.50% 2.95c. 3.15c.
Carbon .51-.75 4.30c. 4.50c.
Carbon .76-1.00 6.15c. 6.35c.
Carbon 1.01 to 1.25 8.35c. 8.55c.

WIRE PRODUCTS

(Carload lots, f.o.b. Pittsburgh, Chicago, Cleveland and Birmingham)

To Manufacturing Trade

Per Lb.

Bright wire	2.60c.
Galvanized wire, base	2.65c.*
Spring wire	3.20c.

* On galvanizing wire to manufacturing trade, size and galvanizing extras are charged, the price Nos. 6 to 9 gage, inclusive, thus being 3.15c.

To the Trade

Base per Keg

Standard wire nails	\$2.45
Coated nails	2.45
Cut nails, carloads	3.60

Base per 100 Lb.

Annealed fence wire	\$2.95
Galvanized fence wire	3.35
Polished staples	3.15
Galvanized staples	3.40
Barbed wire, galvanized	3.20
Twisted barless wire	3.20
Woven wire fence, base column	67
Single loop bale ties, base col.	56

Note: Birmingham base same on above items, except spring wire.

Add \$4 a ton for Mobile, Ala.; \$5 for New Orleans; \$6 for Lake Charles to above bases, except on galvanized and annealed merchant fence wire, which are \$1 a ton additional in each case.

STEEL AND WROUGHT IRON PIPE AND TUBING

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

F.o.b. Pittsburgh only on wrought iron pipe.

Butt Weld

Steel	Black	Galv.	Wrought Iron	Black	Galv.
1/2	56	36	1/2 & 3/4	9	30
3/4	59	43 1/2	3/4	24	6 1/2
1	63 1/2	54	1	30	13
3/4	66 1/2	58	1 & 1 1/4	34	19
1 to 3	68 1/2	60 1/2	1 1/2	38	21 1/2
			2	37 1/2	21

Lap Weld

2	61	52 1/2	2	30 1/2	15
2 1/2	64	55 1/2	2 1/2 to 3 1/2	31 1/2	17 1/2
3 1/2	66	57 1/2	4	33 1/2	21
7 & 8	65	55 1/2	4 1/2	32 1/2	20
9 & 10	64 1/2	55	9 to 12	28 1/2	15
11 & 12	63 1/2	54			

Butt weld, extra strong, plain ends

1/2	54 1/2	41 1/2	1/2 & 3/4	10	43
3/4	56 1/2	45 1/2	3/4	25	9
1	61 1/2	53 1/2	1	31	15
3/4	65 1/2	57 1/2	1 to 2	33	22 1/2
1 to 3	67	60			

Lap weld, extra strong, plain ends

2	59	51 1/2	2	33 1/2	18 1/2
2 1/2	63	55 1/2	2 1/2	4.39	25 1/2
3 1/2	66 1/2	59	4 1/2	6.37 1/2	24
7 & 8	65 1/2	56	7 & 8	38 1/2	24 1/2
9 & 10	64 1/2	55	9 to 12	32	20 1/2
11 & 12	63 1/2	54			

On butt weld and lap weld steel pipe jobbers are granted a discount of 5%. On less-than-carload shipments prices are determined by adding 25 and 30% and the carload freight rate to the base card.

F.o.b. Gary prices are two points lower discount or \$4 a ton higher than Pittsburgh or Lorain on lap weld and one point lower discount, or \$2 a ton higher, on all butt weld 3 in. and smaller.

Boiler Tubes

Seamless Steel and Lap Weld Commercial Boiler Tubes and Locomotive Tubes. Minimum Wall. (Net base prices per 100 ft. f.o.b. Pittsburgh in carload lots)

	Seamless	Lap Weld
	Cold Drawn	Hot Rolled
1 in. o.d.	13 B.W.G. \$ 9.01	7.82
1 1/4 in. o.d.	13 B.W.G. 10.67	9.28
1 1/2 in. o.d.	13 B.W.G. 11.79	10.28
1 3/4 in. o.d.	13 B.W.G. 13.42	11.84
2 in. o.d.	13 B.W.G. 15.03	13.04
2 1/4 in. o.d.	13 B.W.G. 16.76	14.54
2 1/2 in. o.d.	12 B.W.G. 18.45	16.01
2 3/4 in. o.d.	12 B.W.G. 20.21	17.54
3 in. o.d.	12 B.W.G. 22.48	19.50
3 1/2 in. o.d.	11 B.W.G. 28.37	24.62
4 in. o.d.	10 B.W.G. 35.20	30.54
4 1/2 in. o.d.	10 B.W.G. 43.04	37.35
5 in. o.d.	9 B.W.G. 54.01	46.87
6 in. o.d.	7 B.W.G. 82.93	71.96

Extras for less carload quantities:

40,000 lb. or ft. or over	Base
30,000 lb. or ft. to 39,999 lb. or ft.	5%
20,000 lb. or ft. to 29,999 lb. or ft.	10%

10,000 lb. or ft. to 19,999 lb. or ft.	20%
5,000 lb. or ft. to 9,999 lb. or ft.	30%
2,000 lb. or ft. to 4,999 lb. or ft.	45%
Under 2,000 lb. or ft.	65%

CAST IRON WATER PIPE

Pet Net Ton

*6-in. and larger, del'd Chicago	\$51.00
6-in. and larger, del'd New York	49.00
*6-in. and larger, Birmingham	43.00
6-in. and larger, f.o.b. dock, San Francisco or Los Angeles	52.00
F.o.b. dock, Seattle	52.00
4-in. f.o.b. dock, San Francisco or Los Angeles	55.00
F.o.b. dock, Seattle	52.00

Class "A" and gas pipe, \$3 extra 4-in. pipe is \$3 a ton above 6-in.

Prices for lots of less than 200 tons. For 200 tons and over, 6-in. and larger is \$42, Birmingham, and \$50 delivered Chicago and 4-in. pipe, \$45, Birmingham, and \$54 delivered Chicago.

BOLTS, NUTS, RIVETS, SET SCREWS

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)

Per Cent Off List

Machine and carriage bolts:	
1/2 in. & 6 in. and smaller	65, 5 and 5*
Larger and longer up to	
1 in.	60, 10 and 5*
1 1/2 in. and larger	60, 5 and 5*
Lag bolts	60, 10 and 5
Plow bolts, Nos. 1, 2, 3	
and 7	65, 5 and 5
Hot pressed nuts, and c.p.c.	
and t nuts, square or hex.	
blank or tapped:	
1/2 in. and smaller	65 and 5
9/16 in. to 1 in. inclusive	60, 5 and 5
1 1/2 in. and larger	60 and 5

* Less carload lots and less than full container quantity. Less carload lots in full container quantity, an additional 10 per cent discount; carload lots and full container quantity, still another 5 per cent discount.

Semi-fin. hexagon nuts U.S.S. S.A.E.

1/2 to 7/16 in. incl.	65-10	70-5
1/2 to 9/16 in.	65-5	70
5/8 to 1-in. incl.	60-10	65
1 1/4 in. and larger	60-5	60-5

Beyond the above, an additional 10 per cent allowed for full container quantities.

Stove bolts in packages, nuts attached 75 |

Stove bolts in packages, with nuts separate 75 and 12 1/2 |

Stove bolts in bulk 85 |

On stove bolts freight is allowed to destination on 200 lb. and over.

Large Rivets

(1/2-in. and larger)

Base per 100 Lb.

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham \$3.40 |

Small Rivets

(7/16-in. and smaller)

Per Cent Off List

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham 65 and 10 |

Cap and Set Screws

(Freight allowed to destination)

Per Cent Off List

Milled hexagon head, cap screws,	
1 in. dia. and smaller	50 and 10
Milled square head set screws,	
case hardened, 1 in. dia. and smaller	75 and 10
Milled headless set screws, cut	
thread 3/4 in. and smaller	70 and 10
Upset hex. head cap screws U.S.S. or S.A.E. thread 1 in. and smaller	67 1/2 and 10
Upset set screws, cup and oval	
points	75 and 10
Milled studs	60 1/2 and 10

Alloy and Stainless Steel

Alloy Steel Blooms, Billets and Slabs

F.o.b. Pittsburgh, Chicago, Canton, Massillon, Buffalo, Bethlehem. Base price, \$56.00 a gross ton.

Alloy Steel Bars

F.o.b. Pittsburgh, Chicago, Buffalo, Bethlehem, Massillon or Canton. Open-hearth grade, base 2.80c. |

Delivered, Detroit 2.90c. |

S.A.E. Alloy Series Differential Numbers per 100 Lb.

200 (1/2% Nickel) \$0.35 |

2100 (1 1/2% Nickel)	\$0.75
2300 (3 1/2% Nickel)	1.55
2500 (5% Nickel)	2.25
3100 Nickel-chromium	0.70
3200 Nickel-chromium	1.85
3300 Nickel-chromium	3.80
3400 Nickel-chromium	3.20
4100 Chromium-molybdenum	
(0.15 to 0.25 Molybdenum)	0.55
4100 Chromium-molybdenum	
(0.25 to 0.40 Molybdenum)	0.75
4600 Nickel - molybdenum (0.20 to 0.30 Mo. 1.50 to 2.00 Ni.)	1.10
5100 Chrome steel (0.60-0.90 Cr.)	0.35
5100 Chrome steel (0.80-1.10 Cr.)	0.45
5100 Chromium spring steel	0.15
6100 Chromium-vanadium bar	1.20
6100 Chromium-vanadium spring steel	0.85
Chromium-nickel vanadium	1.50
Carbon-vanadium	0.85

These prices are for hot-rolled steel bars. The differential for most grades in electric furnace steel is 50c. higher. Slabs with a section area of 16 in. and 2 1/2 in. thick or over take the billet base.

Alloy Cold-Finished Bars

F.o.b. Pittsburgh, Chicago, Gary, Cleveland or Buffalo, 3.40c. base per lb. Delivered Detroit, 3.50c., carlots.

CORROSION & HEAT RESISTANT ALLOYS

(Base prices, cents per lb., f.o.b. Pittsburgh)

Chrome-Nickel

	No. 304	No. 302
Forging billets	21.25c.	20.40c.
Bars	25c.	24c.
Plates	29c.	27c.
Structural shapes	25c.	24c.
Sheets	36c.	34c.
Hot-rolled strip	23.50c.	21.50c.
Cold-rolled strip	30c.	28c.
Drawn wire	25c.	24c.

Straight Chrome

	No. 410	No. 430	No. 442	No. 446
Bars	18.50c.	19c.	22.50c.	27.50c.
Plates	21.50c.	22c.	25.50c.	30.50c.
Sheets	26.50c.	29c.	32.50c.	36.50c.
Hot strip	17c.	17.50c.	23c.	28c.
Coldstp.	22c.	22.50c.	28.50c.	36.50c.

TOOL STEEL

High speed	67c.
High-carbon-chrome	43c.
Oil-hardening	24c.
Special	22c.
Extra	18c.
Regular	14c.

Prices for warehouse distribution to all points on or East of Mississippi River are 2c. a lb. higher. West of Mississippi quotations are 3c. a lb. higher.

British and Continental

BRITISH

Per Gross Ton

f.o.b. United Kingdom Ports

Ferromanganese, ex-	
port	£14 Nominal
Tin plate, per base box	
20s. 3d. to 21s. 6d.	
Steel bars, open hearth	£11
Beams, open-hearth	£10 12s. 6d.
Channels, open-hearth	£10 17s. 6d.
Angles, open-hearth	£10 12s. 6d.
Black sheets, No. 24 gage	£13
Galvanized sheets, No. 24 gage	£15 5s.

CONTINENTAL

Per Gross Ton, Gold £. f.o.b. Continental Ports

Billets, Thomas	Nominal
Wire rods, No. 5 B.W.G.	£5 10s.
Steel bars, merchant	£5 5s.
Sheet bars	Nominal
Plate 1/4 in. and up	£5 7s.
Plate 3/16 in. and 5 mm.	£5 13s.
Sheets 1/4 in.	£5 9s. 6d.
Beams, Thomas	£4 18s.
Angles (Basic)	£4 18s.
Hoops and strip, base	£5 12s.

RAW MATERIALS PRICES

PIG IRON

No. 2 Foundry

F.o.b. Everett, Mass.....	\$22.75
F.o.b. Bethlehem, Birdsboro and Swedeland, Pa., and Sparrows Point, Md.	\$22.00
Delivered Brooklyn	24.50
Delivered Newark or Jersey City	23.53
Delivered Philadelphia	22.84
F.o.b. Neville Island, Erie, Pa., Toledo, Chicago, Granite City, Cleveland and Youngstown*..	21.00
F.o.b. Buffalo	21.00
F.o.b. Detroit	21.00
Southern, delivered Cincinnati	21.06
Northern, delivered, Cincinnati	21.44
F.o.b. Duluth	21.50
F.o.b. Provo, Utah	19.00
Delivered, San Francisco, Los Angeles or Seattle.....	24.50
F.o.b. Birmingham*	17.38

* Delivered prices on southern iron for shipment to northern points are 38c. a ton below delivered prices from nearest northern basing point on iron with phosphorus content of 0.70 per cent and over.

Malleable

Base prices on malleable iron are 50c. a ton above No. 2 foundry quotations at Everett, Eastern Pennsylvania furnaces, Erie and Buffalo. Elsewhere they are the same, except at Birmingham and Provo, which are not malleable iron basing points.

Basic

F.o.b. Everett, Mass.....	\$22.25
F.o.b. Bethlehem, Birdsboro, Swedeland and Steelton, Pa., and Sparrows Point, Md.	21.50
F.o.b. Buffalo	20.00
F.o.b. Neville Island, Erie, Pa., Toledo, Chicago, Granite City, Cleveland and Youngstown..	20.50
Delivered Philadelphia	22.34
Delivered Canton, Ohio	21.89
Delivered Mansfield, Ohio	22.44
F.o.b. Birmingham	16.00

Bessemer

F.o.b. Buffalo	\$22.00
F.o.b. Everett, Mass.....	23.75
F.o.b. Bethlehem, Birdsboro and Swedeland, Pa.	23.00
Delivered Newark or Jersey City	24.53
Erie, Pa., and Duluth	22.00
F.o.b. Neville Island, Toledo, Chicago and Youngstown....	21.50
F.o.b. Birmingham	22.00
Delivered Cincinnati	22.11
Delivered Canton, Ohio	22.89
Delivered Mansfield, Ohio	23.44

Low Phosphorus

Basing points: Birdsboro, Pa., Steelton, Pa., and Standish, N. Y.	\$26.50
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Gray Forge

Valley or Pittsburgh furnace...	\$20.50
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Charcoal

Lake Superior furnace	\$25.00
Delivered Chicago	28.34

Canadian Pig Iron

Per Gross Ton

Delivered Toronto

No. 1 fdy., sil. 2.25 to 2.75....	\$26.50
No. 2 fdy., sil. 1.75 to 2.25....	25.50
Malleable	26.00
Basic	25.50

Delivered Montreal

No. 1 fdy., sil. 2.25 to 2.75....	\$27.50
No. 2 fdy., sil. 1.75 to 2.25....	27.00
Malleable	27.50
Basic	27.00

FERROALLOYS

Ferromanganese

F.o.b. New York, Philadelphia, Baltimore, Mobile or New Orleans.

Per Gross Ton

Domestic, 80% (carload).....\$92.50

Spiegeleisen

Per Gross Ton Furnace

Domestic, 19 to 21%.....\$28.00
Domestic, 26 to 28%.....33.00

Electric Ferrosilicon

Per Gross Ton Delivered;

Lump Size

50% (carload lots, bulk).....\$69.50*
50% (ton lots in 50 gal. bbl.).. 80.50*
75% (carload lots, bulk).....126.00*
75% (ton lots in 50 gal. bbl.).. 139.00*

Bessemer Ferrosilicon

F.o.b. Furnace, Jackson, Ohio

Per Gross Ton

10.00 to 10.50%.....\$30.50

For each additional 0.50% silicon up to 12%, 50c. per ton is added. Above 12% add 75c. per ton.

For each unit of manganese over 2%, 1 per ton additional. Phosphorus 0.75% or over, \$1 per ton additional.

Base prices at Buffalo are \$1.25 a ton higher than at Jackson.

Silvery Iron

Per Gross Ton

F.o.b. Jackson, Ohio, 5.00 to 5.50% \$24.50 |

For each additional 0.5% silicon up to 12%, 50c. a ton is added. Above 12% add 75c. a ton.

The lower all-rail delivered price from Jackson or Buffalo is quoted with freight allowed. Base prices at Buffalo are \$1.25 a ton higher than at Jackson.

Manganese, each unit over 2%, \$1 a ton additional. Phosphorus 0.75% or over, \$1 a ton additional.

Ferrochrome

Per Lb. Contained Cr., Delivered

Carlots, Lump Size, on Contract

4 to 6% carbon.....10.50c.*
2% carbon 16.50c.* || 1% carbon | 17.50c.* |
| 0.10% carbon | 19.50c.* |
| 0.06% carbon | 20.00c.* |

Silico-manganese

Per Gross Ton, Delivered, Lump

Size, Bulk, on Contract

3% carbon \$92.75 || 2.50% carbon | 97.75 |
| 2% carbon | 102.75 |
| 1% carbon | 112.75 |

Other Ferroalloys

Ferrotungsten, per lb. contained W del., carloads, nominally \$2.00 |

Ferrotungsten, lots of 500 lbs. nominally 2.05 |

Ferrotungsten, smaller lots, nominally 2.10 |

Ferrovanadium, contract, per lb. contained V., delivered \$2.70 to \$2.90† |

Ferrocolumbium, per lb. contained columbium, f.o.b. Niagara Falls, N. Y., tons lots. \$2.25†

Ferrocobalt, 15 to 18% Ti, 7 to 8% C, f.o.b. furnace carload and contract per net ton \$142.50 |

Ferrocobalt, 17 to 20% Ti, 3 to 5% C, f.o.b. furnace, carload and contract, per net ton \$157.50 |

Ferrophosphorus, electric or blast furnace material, in carloads, f.o.b. Anniston, Ala., for 18%, with \$3 unitage, freight equalized with Rockdale, Tenn., per gross ton \$58.50 |

Ferrophosphorus, electrolytic, 23-26% in car lots, f.o.b. Monsanto (Siglo), Tenn., 24%, per gross ton, \$3 unitage, freight equalized with Nashville \$75.00 |

Ferromolybdenum, per lb. Mo. f.o.b. furnace 95c. |

Calcium molybdate, per lb. Mo. f.o.b. furnace 80c. |

*Spot prices are \$5 per ton higher

†Spot prices are 10c. per lb. of contained element higher.

ORES

Lake Superior Ores

Delivered Lower Lake Ports

Per Gross Ton

Old range, Bessemer, 51.50%....\$5.25
Old range, non-Bessemer, 51.50% 5.10
Messabi, Bessemer, 51.50%..... 5.10
Messabi, non-Bessemer, 51.50%.. 4.95
High phosphorus, 51.50%..... 4.85

Foreign Ore

C.A.J. Philadelphia or Baltimore

Per Unit

Iron, low phos., copper free, 55 to 58% dry, Algeria..... 13c.
Iron, low phos., Swedish, average, 68½% iron 15c. || Iron, basic or foundry, Swedish, aver. 65% iron..... | 13c. |
Iron, basic or foundry, Russian, aver. 65% iron.....	Nominal
Man., Caucasian, washed 52%	35c.
Man., African, Indian, 44-48%	33c.
Man., African, Indian, 49-51%	35c.
Man., Brazilian, 46 to 48½%	33c.

Per Short Ton Unit

Tungsten, Chinese, Wolframite, duty paid, delivered \$20.00 || Tungsten, domestic, scheelite delivered | \$19.00 to \$20.00 |
Chrome ore (lump) c.l.f. Atlantic Seaboard, per gross ton: South African (low grade)	15.00
Rhodesian, 45%	19.50
Rhodesian, 48%	23.00
Turkish, 48-49%	23.00 to 24.00
Turkish, 45-46%	19.00 to 20.00
Turkish, 40-44%	17.00 to 18.00
Chrome concentrates (Turkish) c.l.f. Atlantic Seaboard, per gross ton: 50%	26.00 to 27.00
48-49%	23.25 to 24.25

FLUORSPAR

Per Net Ton

Domestic washed gravel, 85-5, f.o.b. Kentucky and Illinois mines, all rail \$17.00 to \$18.00 || Domestic, f.o.b. Ohio River landing barges | 18.00 |
No. 2 lump, 85-5, f.o.b. Kentucky and Ill. mines	18.00
Foreign, 85% calcium fluoride, not over 5% silicon, c.l.f. Atlantic ports, duty paid....	24.50
Domestic No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silicon, f.o.b. Illinois and Kentucky mines	31.50

FUEL OIL

Per Gal.

No. 2 or diesel, f.o.b. Bayonne. 4.125c.
No. 6, f.o.b. Bayonne..... 2.26c.
Del'd Chicago, No. 5 Bur. Stds. 3.25c.
Del'd Chicago, No. 6 Bur. Stds. 2.75c.
Del'd Cleve'd, No. 3 distillate 5.50c.
Del'd Cleve'd, No. 4 industrial 5.25c.
Del'd Cleve'd, No. 5 industrial 3.00c.
Del'd Cleve'd, No. 6 industrial 2.75c.

COKE

Per Net Ton

Furnace, f.o.b. Connellsville, Prompt \$3.75 || Foundry, f.o.b. Connellsville, Prompt | \$4.75 to 5.50 |
Foundry, by-product, Chicago ovens	10.25
Foundry, by-product, del'd New England....	12.50
Foundry, by-product, del'd Newark or Jersey City	10.88 to 11.40
Foundry, by-product, Philadelphia	10.95
Foundry, by-product, delivered Cleveland ...	10.30
Foundry, by-product, delivered Cincinnati ..	9.75
Foundry, Birmingham ..	7.50
Foundry, by-product, del'd St. Louis industrial district	10.75 to 11.00
Foundry, from Birmingham, f.o.b. cars dock, Pacific ports	14.75

IRON AND STEEL WAREHOUSE PRICES

PITTSBURGH

Base per Lb.

Plates	3.55c.
Shapes	3.55c.
Soft steel bars and small shapes	3.60c.
**Reinforcing steel bars	2.70c.
Cold finished bars and screw stock	3.95c.
Hot rolled strip	3.75c.
Hot rolled sheets	3.50c.
Galv. sheets (24 ga.) 500 lb. to 1499 lb.	4.50c.
Wire, black, soft annealed	3.15c.
Wire, galv., soft	3.55c.
Track spikes (1 to 24 kegs)	3.75c.
Wire nails (in 100-lb. kegs)	2.65c.

On plates, structurals, bars, strip and hot rolled sheets, base applied to orders of 400 to 1999 lb.
 ** On reinforcing bars base applies to orders of less than one ton and includes switching and carting charge.
 All above prices for delivery within the Pittsburgh switching district.

NEW YORK

Base per Lb.

Plates, 1/4 in. and heavier	3.83c.
Structural shapes	3.75c.
Soft steel bars, round	3.94c.
Iron bars, Swed. char-coal	7.50 to 8.25c.
Cold-fin. shafting and screw stock:	
Rounds, squares, hexagons	4.39c.
Flats up to 12 in. wide	4.39c.
Cold-rolled strip, soft and quarter hard	3.66c.
Hot-rolled strip, soft O.H.	4.11c.
Hot-rolled sheets (10 ga.)	3.73c.
Galv. sheets (24 ga.)	4.60 to 4.85c.
Long ternes (24 ga.)	5.50 to 6.20c.
Cold-rolled sheets (20 ga.)	
Standard quality	4.90c.
Deep drawing	5.15c.
Stretch leveled	5.50c.
SAE, 2300, hot-rolled	7.50c.
SAE, 3100, hot-rolled	6.10c.
SAE, 6100, hot-rolled annealed	10.25c.
SAE, 2300, cold-rolled	8.69c.
SAE, 3100, cold-rolled, annealed	7.29c.
Floor plate, 1/4 in. and heavier	5.43c.
Standard tool steel	12.50c.
Wire, black, annealed (No. 9)	4.65c.
Wire, galv. (No. 9)	5.00c.
Open-hearth spring steel	4.75c. to 10.25c.
Common wire nails, per keg in 25 keg lots	\$3.25

CHICAGO

Base per Lb.

Plates and structural shapes	3.55c.
Soft steel bars, rounds and angles	3.60c.
Soft steel squares, hexagons, channels and Tees	3.75c.
Hot rolled strip	3.75c.
Floor plates	5.15c.
Hot rolled sheets	3.50c.
Galvanized sheets	4.50c.
Cold rolled sheets	4.45c.
Cold finished carbon bars	4.05c.

Above prices are subject to deductions and extras for quantity and are f.o.b. consumer's plant within Chicago free delivery zone.

CLEVELAND

Base per Lb.

Plates	3.55c.
Structural shapes	3.73c.
Soft steel bars	3.50c.
Reinfor. bars (under 2000 lb.)†	2.55c.
Cold-fin. bars (1000 lb. over)	4.05c.
Hot-rolled strip	3.65c.
Cold rolled sheets	4.70c.
Cold-finished strip	3.35c.
Galvanized sheets (No. 24)	4.62c.
Hot-rolled sheets	3.50c.
Floor plates, 3/16 in. and heavier	5.33c.
*Black ann'l'd wire, per 100 lb.	\$3.10
*No. 9 galv. wire, per 100 lb.	3.50
*Com. wire nails, base per keg	2.60
Hot rolled alloy steel (3100)	6.05c.
Cold rolled alloy steel (3115)	6.85c.

* For 5000 lb. or less
 † 500 lb., base quantity.

Prices shown on hot rolled bars, strip, sheets, shapes and plates are for 400 to 1999 lb. Alloy steel, 1000 lb. and over; galvanized sheets, 150 to 1499 lb.; cold rolled sheets, 399 lb. and under.

ST. LOUIS

Base per Lb.

Plates and structural shapes	3.82c.
Bars, soft steel (rounds and flats)	3.87c.
Bars, soft steel (squares, hexagons, ovals, half ovals and half rounds)	4.02c.
Cold fin. rounds, shafting, screw stock	4.32c.
Galv. sheets (24 ga.)	4.77c.
Hot rolled sheets	3.77c.
Galv. corrugated sheets, 24 ga. and heavier*	4.82c.
Structural rivets	5.02c.

* No. 26 and lighter take special prices.

BOSTON

Base per Lb.

Structural shapes, 3 in. and larger	5.85c.
Plates, 1/4 in. and heavier	3.85c.
Bars	3.98c.
Heavy hot rolled sheets	3.86c.
Hot rolled sheets	4.21c.
Hot rolled annealed sheets	4.76c.
Galvanized sheets	4.76c.
Cold rolled sheets	4.93c.

The following quantity differentials apply: Less than 100 lb., plus \$1.50 per 100 lb.; 100 to 399 lb. plus 50c.; 400 to 1999 lb. base; 2000 to 9999 lb. minus 20c.; 10,000 to 39,999 lb. minus 30c.; 40,000 lb. and over minus 40c.

BUFFALO

Plates	3.77c.
Floor plates	5.40c.
Struct. shapes	3.55c.
Soft steel bars	3.60c.
Reinforcing bars (20,000 lb. or more)	2.05c.
Cold-fin. flats, squares, rounds, and hex.	4.05c.
Hot-rolled sheets, 3/16 x 14 in. to 48 in. wide incl. also sizes No. 8 to 30 ga.	3.50c.
Galv. sheets (24 ga.)	4.50c.
Bands and hoops	3.97c.

NEW ORLEANS

Base per Lb.

Mild steel bars	4.20c.
Reinforcing bars	3.24c.
Structural shapes	4.10c.
Plates	4.10c.
Hot-rolled sheets, No. 10	4.35c.
Steel bands	4.75c.
Cold-finished steel bars	5.10c.
Structural rivets	4.85c.
Boiler rivets	4.85c.
Common wire nails, base per keg	3.55
Bolts and nuts, per cent off list	60

REFRACTORIES PRICES

Fire Clay Brick

Per 1000 f.o.b. Works

Super-duty brick, at St. Louis	\$60.80
First quality Pennsylvania, Maryland, Kentucky, Missouri and Illinois	47.50
First quality, New Jersey	52.50
Second quality, Pennsylvania, Maryland, Kentucky, Missouri and Illinois	42.75
Second quality, New Jersey	49.00
No. 1, Ohio	39.90
Ground fire clay, per ton	7.10

Silica Brick

Per 1000 f.o.b. Works

Pennsylvania	\$47.50
Chicago District	56.05
Birmingham	47.50
Silica cement per net ton (Eastern)	8.55

Chrome Brick

Per Net Ton

Standard f.o.b. Baltimore, Plymouth Meeting and Chester	\$47.00
Chemically bonded f.o.b. Baltimore, Plymouth Meeting and Chester, Pa.	47.00

Magnesite Brick

Per Net Ton

Standard f.o.b. Baltimore and Chester	\$67.00
Chemically bonded, f.o.b. Baltimore	57.00

Grain Magnesite

Per Net Ton

Imported, f.o.b. Baltimore and Chester, Pa. (in sacks)	\$45.00
Domestic, f.o.b. Baltimore and Chester, in sacks	40.00
Domestic, f.o.b. Chewelah Wash. (in bulk)	22.90

PHILADELPHIA

Base per Lb.

*Plates, 1/4-in. and heavier	3.40c.
*Structural shapes	3.40c.
*Soft steel bars, small shapes, iron bars (except bands)	3.60c.
†Reinforc. steel bars, square and deformed	2.61c.
Cold-finished steel bars	4.36c.
*Steel hoops	4.10c.
*Steel bands, No. 12 and 3/16 in. incl.	3.60c.
*Spring steel	4.75c.
†Hot-rolled anneal. sheets	3.40c.
†Galvanized sheets (No. 24)	4.50c.
*Diam. pat. floor plates, 1/4 in.	5.00c.

These prices are for delivery in Philadelphia trucking area.

*Base prices subject to deduction on orders aggregating 4000 lb. or over.
 †For 25 bundles or over.
 ‡For one to five tons.

BIRMINGHAM

Bars and bar shapes	\$3.85 base
Structural shapes and plates	3.75 "
Hot rolled sheets No. 10 ga.	3.80 "
Hot rolled sheets No. 24 ga.	4.40 " 3500 lb. and over
Galvanized sheets No. 24 ga.	5.05 " 3500 lb. or more
Strip	4.05 "
Reinforcing bars	3.85 "
Floor plates	5.96 "
Cold finished bars	4.91 "
Machine and carriage bolts	.50 & 10 off list
Rivets (structural)	\$4.60 base
On plates, shapes, bars, hot-rolled strip heavy hot-rolled sheets, the base applies on 400 to 3999 lb. All prices are f.o.b. consumer's plant.	

PACIFIC COAST

Base per Lb.

	San Francisco	Los Angeles	Seattle
Plates, tank and U. M.	3.85c.	4.00c.	4.05c.
Shapes, standard	3.95c.	4.00c.	4.05c.
Soft steel bars	4.05c.	4.00c.	4.30c.
Reinforcing bars, f.o.b. cars dock			
Pacific ports	2.675c.	open.	2.975c.
Hot-rolled sheets (No. 10)	4.00c.	4.20c.	4.20c.
Galv. sheets (No. 24 and lighter)	5.15c.	5.05c.	5.50c.
Galv. sheets (No. 22 and heavier)	5.40c.	5.05c.	5.50c.
Cold-finished steel Rounds	6.55c.	6.60c.	7.10c.
Squares and hexagons	7.80c.	7.85c.	7.10c.
Flats	8.30c.	8.35c.	8.10c.
Common wire nails—base per keg less carload	\$3.20	\$3.05	\$3.00

All items subject to differentials for quantity.

ST. PAUL

Base per Lb.

Mild steel bars, rounds	4.10c.
Structural shapes	4.00c.
Plates	4.00c.
Cold-finished bars	4.83c.
Hot-rolled annealed sheets, No. 24	4.75c.
Galvanized sheets, No. 24	5.00c.

On mild steel bars, shapes and plates the base applies on 400 to 14,999 lb. On hot-rolled sheets, galvanized sheets and cold-rolled sheets base applies on 15,000 lb. and over. Base on cold-finished bars is 1000 lb. and over of a size.

THIS WEEK'S MACHINE ...TOOL ACTIVITIES...

... October best month thus far in 1938 for some sellers ... Future markets largely hinge on Government-sponsored projects.

October Best 1938 Month For Cleveland Sellers

CLEVELAND—From the amount of interest being shown by domestic machine tool users, sellers in this district feel sure that the fall sales peak is still to be reached. For some sellers October proved 25 per cent better than September in sales volume and was the best domestic month of the year. November has started out actively and from present indications may exceed the October volume. In Ohio last week a number of lathes were purchased.

Shipments abroad from this district have been heavy recently, including not only machine tools, but such equipment as press brakes and blast furnace machinery.

Inquiries More Active In Pittsburgh Area

PITTSBURGH—Machine tool orders have not improved much in the past two weeks but inquiries are more active. There is a good chance that some orders for machines which are to be included in 1939 budgets may be placed with dealers sometime in December. Despite the failure of actual improvement to develop so far, dealers are slightly optimistic of future prospects.

Some Commitments Withheld Pending Election Results

CHICAGO—Machine tool sellers in this market report that demand slackened somewhat in the past week. The quieter condition could not be attributed to any particular causes, most opinions being that increasing cautiousness was being exercised as the elections approach. Leading interests in the trade are firm in their assertions that any substantial reverse for the New Deal would result in the release of substantial equipment buying. Otherwise, the near-term prospects are described as favorable. Inquiries continue to make a fairly good showing. In the more remote, or at least indefinite, future there is the possibility of a large amount of new and replacement demand. A number of important corporations have been tentatively figuring on extensive programs for execution as soon as conditions warrant. Sales of small tools in October made a wide gain over the September total, largely because of Government orders received during the period.

Government-Sponsored Programs to Boost Machinery Sales

NEW YORK—The steady but spotty improvement in machine tool sales continues in the East and there is a more hopeful feeling among the trade. One district representative received more orders in the last three weeks than in

the past six months. Most new business in sight is going to come from Government-sponsored projects. Some of the larger electrical equipment builders, for example, have issued inquiries on the basis of orders they may receive from the utilities as a result of the expenditure of \$2,000,000,000 for a national defense hook-up, financed through Government loans. Some business is expected from the shipyards when pending battleship contracts are placed. Meanwhile the Navy is going ahead with plans to buy more than \$5,000,000 worth of machine tools authorized for the various yards, from Portsmouth, N. H., to Pearl Harbor, P. I. Some substantial buying has already been done by the Portsmouth yard, usually the first to get its specifications out. The Philadelphia yard should close on some contracts soon, but the New York yard is slow in getting its specifications out.

There has been a little railroad buying in the last month or so, principally on the part of the Lehigh Valley. The larger systems have not issued any inquiries for some time, however.

Navy to Spend \$4,050,000 in Seven Months for Machine Tools

WASHINGTON.—Machine tool and shop equipment purchases to be made by the Navy for its 10 industrial Navy yards during the next seven months are estimated at \$4,050,000 by Navy Department officials. About \$1,200,000 already has been spent since the \$5,250,000 was allocated for the fiscal year 1939, which began last July 1.

Officials hope that Congress will appropriate \$11,000,000 more for machine tools and shop equipment purchases for the fiscal years 1940 and 1941, bringing the total amount allocated for the purpose up to the \$16,000,000 figure which the Department's Construction and Repair Division told Congress last session was necessary to overcome existing deficiencies.

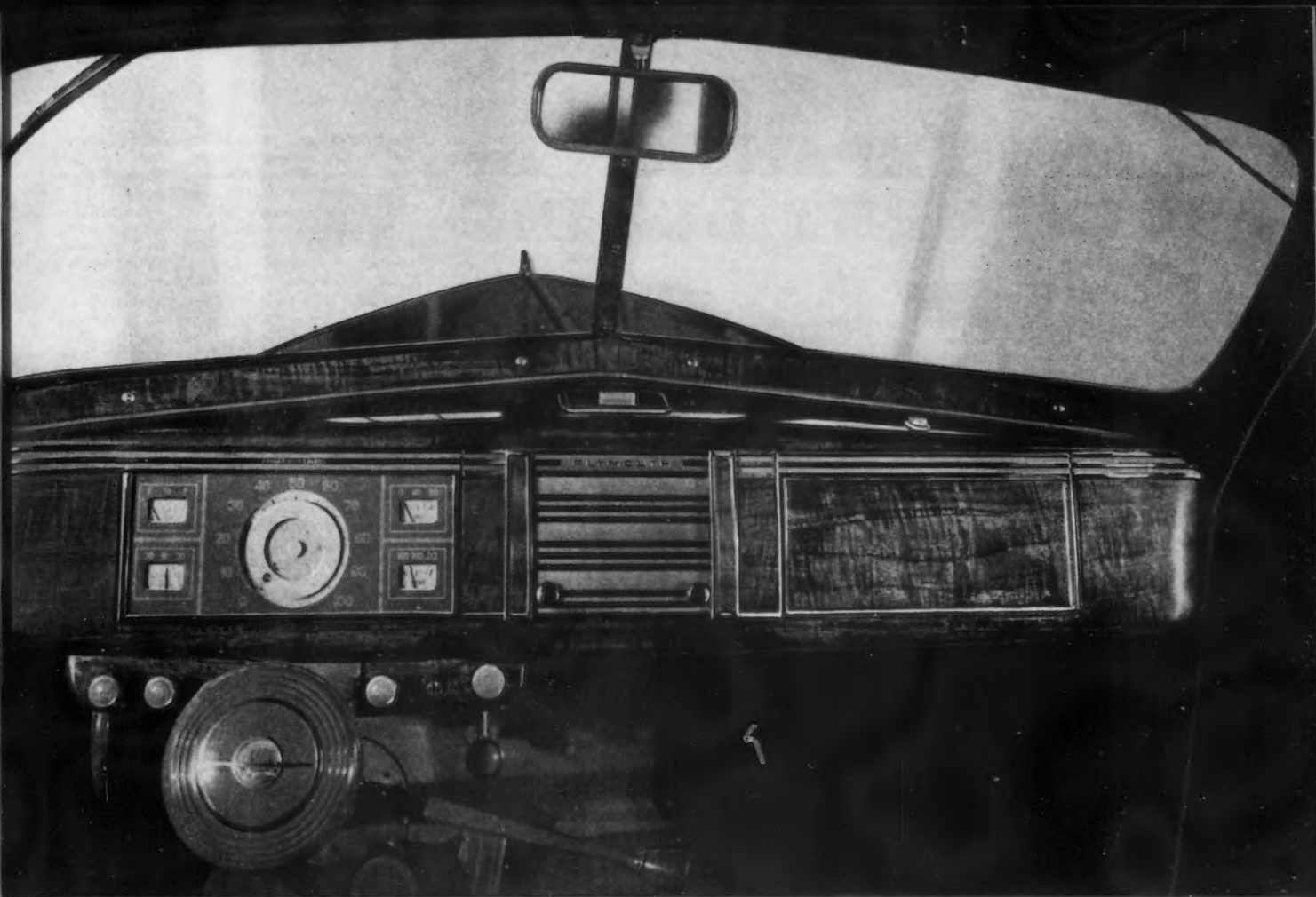
Congress came across with \$5,000,000 of the \$16,000,000, leaving a balance of \$11,000,000 still to be appropriated. Any program contemplating expansion of facilities as contrasted with merely remedying existing deficiencies will, of course, call for funds over and above the \$11,000,000 figure. Supplementing the \$5,000,000 with emergency funds, approximately \$8,200,000 was made available for shop tools and equipment to be purchased for all divisions of the Navy. The Navy yard program is listed with the bulk of these purchases totaling

\$5,250,000. The balance was allocated this way: Ordnance Division, \$2,100,000; Schools, \$250,000; Aeronautical activities, \$500,000; and for all others, \$100,000.

For the improvement of shop buildings and other facilities at the 10 Navy yards, \$38,616,500 is being spent during the current fiscal year. Broken down, \$17,720,500 is for new buildings and improvements to existing buildings; \$4,900,000 for dry dock construction and repair; \$3,145,000 for building and repairing ship building ways; \$3,075,000 for sea walls and wharfs; \$3,876,000 for heavy cranes and other weight handling and transportation equipment; \$2,980,000 for power plant improvement; and \$2,455,000 for power circuits and piping system improvements.

September Machinery Exports Increase 9%

WASHINGTON.—Valued at \$20,355,131, exports of industrial machinery from the United States in September were 9 per cent larger than September a year ago, when they were valued at \$18,700,797, according to the Machinery Division of the Department of Commerce.



The Steering Wheel Has Been Removed to Give You a Better View of the Instrument Panel.

SOMETIMES IT'S THE LITTLE THINGS THAT SELL

With the assurance of good performance regardless of cost, many of today's automobiles are sold on the basis of interior details—details often made possible with ZINC Alloy Die Castings.

The quiet dignity and trim lines of the above instrument panel are in keeping with the '39 public taste. Finished in grained enamel and nickel plate, the die cast instrument group, radio grille, and glove compartment door present a quality appearance that would be difficult to duplicate by any other production method. Incidentally, the speedometer in the instrument group is an innovation in the automotive field. The speedometer needle changes color at various speeds—from green to amber at 30 m. p. h.—from amber to red at 50 m. p. h. This is a decisive step forward in the current campaign for safe driving.

The utility of ZINC Alloy Die Castings for

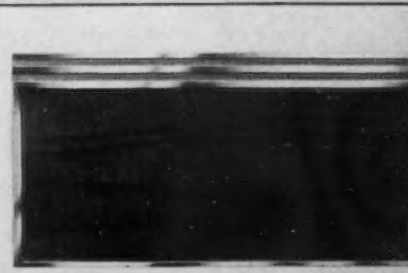
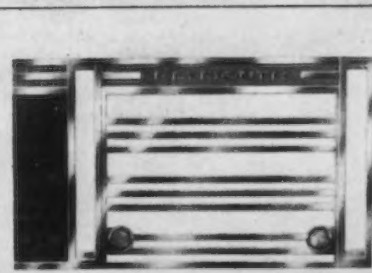
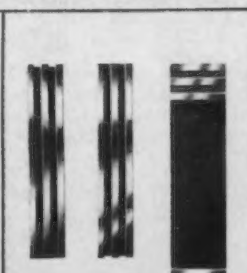
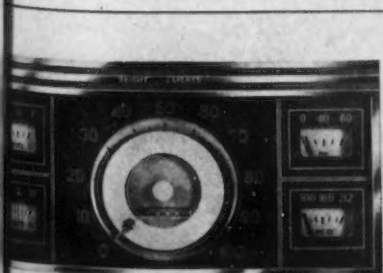
automotive applications is well-established, but when their use is dictated largely by design factors, as in these dash panel parts, one realizes that their full scope has by no means been reached. Whether *your* problems concern automotive parts or any other type of metal parts production, you should be familiar with this versatile metal and method. Consult any commercial die caster, or write to The New Jersey Zinc Company, 160 Front Street, New York City.



ZINC

ALLOY DIE CASTINGS

The Research was done, the Alloys were developed, and most Die Castings are specified with **HORSE HEAD SPECIAL (99.99 + % Uniform Quality) ZINC**



PLANT EXPANSION AND EQUIPMENT BUYING

◀ NORTH ATLANTIC ▶

Southern Kraft Corp., 220 East Forty-second Street, New York, kraft paper stocks, plans expansion and improvements in mill at Mobile, Ala., including new equipment in pulp and paper-making divisions. Cost about \$200,000 with machinery.

Lehigh Portland Cement Co., Allentown, Pa., has approved plans for additions and improvements in mill at Alsen, N. Y., including equipment. Cost over \$250,000 with equipment.

Continental Oil Co., 60 East Forty-second Street, New York, has acquired about 125 acres near line of Northern Pacific Railroad, Billings, Mont., and is considering new oil refinery at that location, with steel tank storage and distributing facilities. Work is scheduled to begin early in 1939.

Commanding Officer, Ordnance Department, Watervliet Arsenal, Watervliet, N. Y., asks bids until Nov. 14 for alloy steel forgings, solid, without bore (Circular 64); until Nov. 17, one grinding machine (Circular 59); until Nov. 18, latch forgings (Circular 61).

American Tobacco Co., 111 Fifth Avenue, New York, plans five-story and basement addition, 90 x 280 ft., at main plant, Durham, N. C. Conveying, loading and other mechanical-handling facilities will be installed. Cost close to \$450,000 with equipment. Francisco & Jacobus, 511 Fifth Avenue, New York, are architects and engineers.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Nov. 15 for one motor-driven boring bar (Schedule 4807), safety treads with aluminum alloy base (Schedule 4794), 276 cutting hand acetylene torches (Schedule 4790) for Brooklyn Navy Yard; until Nov. 18, hacksaw blades (Schedule 4796) for Brooklyn, Mare Island and Norfolk yards.

Board of Education, Troy, N. Y., plans manual training department in new multi-story high school on Tibbets Avenue. Cost about \$1,400,000. Financing has been arranged through Federal aid. F. J. Morgan, Second Street, is architect.

Contracting Officer, Quartermaster Corps, Fort H. G. Wright, N. Y., asks bids until Nov. 14 for four steam boilers, steel or cast iron (Circular 971-16).

Bureau of Yards and Docks, Navy Department, Washington, asks bids until Dec. 14 for two 350-ton hammerhead cranes, one for installation at Brooklyn Navy Yard and other at Norfolk (Specifications 8979). Bureau also has received low bid from Hudson Contracting Co., Inc., 307 Fifth Avenue, New York, at \$588,000 for addition to shop building No. 4, Brooklyn Navy Yard.

Commanding Officer, Ordnance Department, Picatinny Arsenal, near Dover, N. J., asks bids until Nov. 14 for one chase grinder (Circular 371), cutter and radius grinder (Circular 369, motor-driven drill grinder for sharpening and thinning lips of small drills (Circular 365), machine for cutting tying straps, handles, etc., to length (Circular 370); until Nov. 16, vacuum filter for crystallization (Circular 362).

Department of Supplies and Purchases, City Hall Annex, Philadelphia, Wilhelm F. Knauer, director, asks bids until Nov. 15 for centrifugal pumps (Class 456).

Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa., rolling mill machinery, hydraulic presses, etc., has acquired Scott foundry department of Reading Iron Co., Reading, Pa., for production of new line of sheet grinding machinery and parts, abrasive products, etc.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Nov.

15 for steel machine bolts and nuts (Schedule 4831), one motor-driven slotting machine (Schedule 4810); until Nov. 18, one pressure gage tester (Schedule 4844) for Philadelphia Navy Yard; drill chucks (Schedule 4789) for Philadelphia, Sewall's Point and Mare Island yards.

Quartermaster Depot, Twenty-first and Johnston Streets, Philadelphia, asks bids until Nov. 15 for 100,000 lb. of $\frac{3}{8}$ -in. galvanized, nailless flat strapping (Circular 669-82).

Commanding Officer, Ordnance Department, Frankford Arsenal, Philadelphia, asks bids until Nov. 14 for one second trim machine, caliber 0.30; three body case annealing machines, caliber 0.30, and two auto lathes, case head turning machines (Circular 368); until Nov. 16, three cartridge gaging and weighing machines, caliber 0.30 (Circular 379).

◀ NEW ENGLAND ▶

Commanding Officer, Ordnance Department, Springfield Armory, Springfield, Mass., asks bids until Nov. 28 for one semi-portable electric furnace, air draw box type, with motor-driven fan and one indicating potentiometer controller for wall mounting (Circular 139), motorizing equipment for 24-in. planer, with starter belts, brackets, pulley, ball bearing main drive shaft and jack shaft (Circular 124).

School Board, Suffield, Conn., plans manual training department in new two-story high school, for which general contract has been let to Richard Johnson Co., 167 Washington Street, Hartford, Conn. Cost over \$250,000. Financing has been arranged through Federal aid. William T. Merchant, 36 Pearl Street, Hartford, is architect.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Nov. 15 for one metal-cutting hacksaw (Schedule 4823), hacksaw machine (Schedule 4820); until Nov. 22 one sheet metal forming and flanging machine (Schedule 4871) all motor-driven, for Boston Navy Yard; until Nov. 15, rough machined steel forgings (Schedule 4769); until Nov. 22, steel forgings (Schedule 4841) for Boston, Charleston and Puget Sound yards.

◀ BUFFALO DISTRICT ▶

Spencer Lens Co., 19 Doat Street, Buffalo, manufacturer of optical goods, is erecting new plant, 210 x 410 ft., at Cheektowaga, N. Y., where company acquired large tract several months ago. Cost over \$200,000 with equipment. H. E. Plumer & Associates, 775 Main Street, Buffalo, are architects and engineers. Gilmore, Carmichael & Olsen, Cleveland and Buffalo, are general contractors.

United States Engineer Office, Federal Building, Buffalo, asks bids until Nov. 16 for parts for diesel engines (Circular 51).

LeValley, McLeod, Kinkaid Co., 215 East Church Street, Elmira, N. Y., plumbing and heating equipment, plans one-story addition for storage and distribution. Cost close to \$40,000 with equipment.

◀ WASHINGTON DIST. ▶

Board of District Commissioners, District Building, Washington, asks bids until Nov. 21 for steel lockers for Lennon, Franklin, Emery and Brundy schools.

Bureau of Yards and Docks, Navy Department, Washington, asks bids until Nov. 16 for one 25-ton diesel-electric revolving boom crane, mounted on steel pontoon, for Norfolk, Va., Navy Yard (Specifications 8993), crane runway at same yard (Specifications 8817), two-story and basement school at naval submarine base, New London, Conn. (Specifi-

tions 8810); also bids (no closing date stated) for three turbo-alternators and auxiliary equipment for power plant at Pearl Harbor, T. H., Navy Yard (Specifications 9027).

High Rock Ginger Ale Co., 944 Madison Avenue, Baltimore, has let general contract to Abbott Construction Co., 523 West Saratoga Street, for new two-story mechanical-bottling plant. Cost over \$50,000 with equipment.

General Purchasing Officer, Panama Canal, Washington, asks bids until Nov. 14 for galvanized wire rope clips, ventilating fan blowers, galvanized and ungalvanized turnbuckles, machine screws, machine screw nuts and other equipment (Schedule 3396); until Nov. 15, galvanized malleable iron pipe fittings, brass or bronze pipe fittings, railing fittings, malleable iron unions, one steam pressure sterilizer autoclave, six 25-ton screw jacks, track bolts, gate valves, globe valves, bibb cocks, corporation cocks, coil chain and other equipment (Schedule 3395).

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Nov. 15 for one motor-driven engine lathe (Schedule 4822), two motor-driven propeller-type deep well pumps, one float switch and two swing-check valves (Schedule 4774), 30 motor-driven portable ventilating sets (Schedule 4819) for Norfolk Navy Yard; one motor-driven power hack saw (Schedule 4773), submersible portable pumps (Schedule 4657), air pressure reducing valves (Schedule 4767), electric winches (Schedule 4673), fuel oil service pumps (Schedule 4650), one plate-bending roll machine (Schedule 4718); until Nov. 18, electric grinders and drills (Schedule 4791), anchor shackles and thimbles, wire rope (Schedule 4804), motor-driven woodworking planer and matcher (Schedule 4792) for Eastern and Western yards.

◀ SOUTH ATLANTIC ▶

Swift & Co., Union Stock Yards, Chicago, have acquired property on Senate Street, Columbia, S. C., for new branch plant, with storage and distributing division. Cost over \$80,000 with equipment.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Nov. 15 for 15 individual portable welding panels for Charleston, S. C., Navy Yard (Schedule 4824).

City Council, High Point, N. C., will have revised plans prepared by Murray & Flood, Inc., 369 Lexington Avenue, New York, consulting engineer, for new municipal hydro-electric generating plant on Yadkin River, near Winston-Salem, N. C., for which financing in amount of \$6,492,600 has been arranged through Federal aid. Bids for different features of work will be asked soon. E. M. Knox is city manager.

◀ SOUTH CENTRAL ▶

United States Engineer Office, Vicksburg, Miss., asks bids until Nov. 14 for two diesel oil engine-driven crawler-type tractors, with hoists (Circular 94), 7600 ft. of plow steel wire rope (Circular 95), three cutter blades, with bolts, nuts and washers (Circular 96).

Town Council, Baxter, Tenn., asks bids until Nov. 18 for waterworks equipment, including 100,000-gal. elevated steel tank and tower (Contract B). Financing has been arranged through Federal aid. J. A. Switzer, Knoxville, Tenn., is consulting engineer.

City Commission, Mobile, Ala., has asked bids on general contract for one-story storage and distributing building at bulk-handling plant at Alabama State docks. Fund of \$125,000 has been arranged through Federal aid for building and equipment. J. B. Converse & Co., Inc., Wilson Building, is consulting engineer.

City Council, Canton, Miss., asks bids until Nov. 28 for extensions and improvements in municipal electric power plant, including new steam turbo-generator unit and accessories, boiler and auxiliary equipment. J. B. Wil-

(CONTINUED ON PAGE 101)

liams, Yazoo City, Miss., is consulting engineer.

Standard Oil Co., Birmingham, plans new bulk storage and distributing terminal on Tennessee River waterfront at Decatur, Ala., including 600-ft. wharf, steel tanks, pumping station and other facilities. Cost over \$75,000 with equipment. R. E. Rogers is branch manager at Decatur.

◀ SOUTHWEST ▶

J. W. Glass & Co., Nowata, Okla., have approved plans for new natural gasoline plant in Agua Dulce gas field area, Nueces County, Tex., including compressor station and steel tank storage and distributing division, with pumping plant. Work will begin at once. Cost close to \$350,000 with equipment.

Board of Education, Sixth and Osage Streets, Bartlesville, Okla., Herbert E. Wrinkle, superintendent, plans one-story vocational building at high school. Cost about \$100,000 with equipment. Appropriation has been arranged in that amount. Arthur Gorman, 115 East Eighteenth Street, is architect.

Lincoln Engineering Co., 5701 Natural Bridge Avenue, St. Louis, manufacturer of oil lubricating equipment and kindred products, plans one-story addition. Cost about \$50,000 with equipment.

Brazos River Conservation and Reclamation District, Kyle Hotel Building, Temple, Tex., John A. Norris, chief engineer and general manager, asks bids until Nov. 22, to be received at office of Ambursen Engineering Corp., 295 Madison Avenue, New York, consulting engineer, for equipment for hydroelectric power plant at Possum Kingdom dam, Brazos River, near Mineral Wells, Tex., including two 17,000-hp. hydraulic turbines, two 12,500-kva. electrical generators and accessories, two hydraulic governors for turbines, switchboard and auxiliary equipment, metal-clad switchgear, station service equipment and neutral oil circuit breaker cubicles.

Todd Galveston Dry Docks, Inc., Galveston, Tex., has begun expansion and improvements at local drydock and ship repair plant, to include new pier, 975 ft. long, drydock to accommodate vessels from 8000 to 10,000-ton rating, shops and other buildings. Cranes, hoists and other mechanical-handling facilities will be installed. Cost over \$500,000 with equipment.

◀ WESTERN PA. DIST. ▶

H. J. Heinz Co., 1062 Progress Street, Pittsburgh, food packer, has approved plans for one-story branch plant at Holland, Mich., for which superstructure will begin soon. Cost over \$60,000 with equipment.

Trinity High School District, Fredonia, Pa., has asked bids on general contract for new two-story vocational high school. Cost about \$150,000 with equipment. A. Thayer, Greer Building, New Castle, Pa., is architect.

Kanawha County Board of Education, Charleston, W. Va., plans manual training department in new three-story Stonewall Jackson High School, for which bids are being asked on general contract until Nov. 21. Cost over \$350,000. Tucker & Silling, Masonic Temple Building, are architects. This is part of a school expansion and improvement program to cost \$3,460,000.

◀ OHIO AND INDIANA ▶

Standard Brewing Co., 5801 Train Avenue, Cleveland, has let general contract to Thomas Berry, 2125 Elbur Avenue, for two-story and basement addition, 118 x 130 ft. Cost over \$75,000 with equipment.

Board of Trustees, Kent University, Kent, Ohio, will ask bids soon on general contract for new steam power house for central heating station, including pipe lines, etc. Cost about \$135,000. J. P. Schooley, State Office Building, Columbus, Ohio, State architect, is in charge.

Contracting Officer, Materiel Division, Air Corps, Wright Field, Dayton, Ohio, asks bids until Nov. 14, one electric-operated tube and

fitting vibrating machine (Circular 315), printer assembly, stand assembly, trimmer assembly and set of lens filter units (Circular 297), three drag rope roller assemblies (Circular 303); until Nov. 15, six alternator assemblies and six dynamotor assemblies (Circular 322), one wood borer, one wood-turning lathe, two jig saws, variety saw, sander, automatic saw filer, all motor-driven (Circular 316), 5600 ft. of control cable (Circular 323), 800 fuel pump flexible-drive connector assemblies (Circular 327), 12 wind direction meters and one wind direction transmitter (Circular 328); until Nov. 17, 14 cone assemblies (Circular 299); until Nov. 21, tail wheel assemblies, landing gear wheel assemblies, landing gear wheel brake assemblies (Circular 298).

Standard Cereals, Inc., Indianapolis, recently organized, has acquired former plant of American Hominy Co., 1857 Gent Avenue, comprising six one and multi-story buildings, totaling about 200,000 sq. ft. of floor space. Structures will be remodeled and machinery installed for grinding, mixing, milling and other operations, with complete mechanical-handling facilities. Herman Lebeson is president; Charles Highstreet is vice-president and general superintendent.

◀ MICHIGAN DISTRICT ▶

Best Industries, Inc., Rives Junction, Mich., plans expansion and improvements in food products canning plant. Cost close to \$40,000 with equipment. Frost & Snyder, Jackson, Mich., are architects.

Ford Motor Co., Dearborn, Mich., plans new one-story plant at South Sudbury, Mass., for production of farm and agricultural equipment, including parts production and assembling. Estimates of cost are being made.

H. D. Smith, Capitol Building, Lansing, Mich., State budget director, has let general contract to Spence Brothers, Saginaw, Mich., for new power house for State institution at Wahjamega, Mich. Cost over \$300,000 with equipment.

Interstate Motor Freight System, Inc., Grand Rapids, Mich., has let general contract to Owen-Ames-Kimball Co., Grand Rapids, for one-story freight terminal on local site. Cost about \$75,000 with loading and mechanical-handling equipment.

◀ MIDDLE WEST ▶

United States Engineer Office, Rock Island, Ill., asks bids until Nov. 14 for one crawler-type crane and dragline, mounted on crawler-type truck (Circular 118).

Pullman-Standard Car Mfg. Co., 79 East Van Buren Street, Chicago, plans one-story steel car shop addition to plant at 110th Street and Cottage Grove Avenue. Cost over \$850,000 with equipment. United Engineers & Constructors, Inc., 111 West Washington Street, Chicago, and 1401 Arch Street, Philadelphia, is engineer.

North Shore Foundry Co., Eleventh Street, Waukegan, Ill., gray iron castings, will take bids soon on general contract for one-story addition, 24 x 110 ft. Cost over \$50,000 with equipment. W. A. Mullin, 5 North Genesee Street, is architect.

Northern Pacific Railway Co., Railroad Building, St. Paul, Minn., plans one-story car shop at Commercial and Euclid Streets, 50 x 160 ft., for unwheeling and other maintenance service. Cost over \$45,000 with equipment.

City Council, Ames, Iowa, asks bids until Nov. 14 for extensions and improvements in municipal electric power plant, including additional equipment. Fund of about \$170,000 has been arranged.

Constructing Quartermaster, Savanna Ordnance Depot, Savanna, Ill., asks bids until Nov. 14 for a crushing and screening plant (Circular 6579-15).

Chicago & Eastern Illinois Railroad Co., 332 South Michigan Avenue, Chicago, has let general contract to Austin Co., 510 North Dearborn Street, Chicago, for one-story coach construction and repair shop. 110 x 415 ft.,

at general repair works, Danville, Ill., to replace structure destroyed by fire. Cost close to \$200,000 with equipment. J. S. McBride, Sixty-sixth Street and Union Avenue, Danville, is engineer.

City Council, Atlantis, Iowa, asks bids until Nov. 22 for extensions and improvements in municipal electric power plant, including 1500-kw. turbo-generator unit and accessories, air cooler, surface condenser and auxiliary equipment. Young & Stanley, Inc., 211 Iowa Avenue, Muscatine, Iowa, is consulting engineer.

◀ PACIFIC COAST ▶

Imperial Irrigation District, El Centro, Cal., W. W. Goodson, secretary, asks bids until Nov. 29 for equipment for new hydroelectric generating plant at Drop, No. 3, All-American Canal system, near Calexico, Cal., including one 7500-hp. hydraulic turbine, one governor, one 6000-kva. electrical generator unit and auxiliary equipment. M. J. Dowd, Imperial, Cal., is chief engineer.

Commanding Officer, Ordnance Department, Benicia Arsenal, Benicia, Cal., asks bids until Nov. 18 for two sets of precision gage blocks (Circular 16).

Elephant Orchards, Inc., Mentone, Cal., fruit packer, plans one-story packing plant, 60 x 325 ft. Cost over \$50,000 with conveyors, loaders and other mechanical-handling equipment. Gordon Donald, 50 East Vine Street, Redlands, Cal., is architect.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Nov. 15 for one 6000-lb. low platform tiering and lifting truck, with storage batteries (Schedule 4730); until Nov. 22, one horizontal boring, drilling, milling and draw-out traveling head planer (Schedule 4832) for Mare Island Navy Yard; one engine lathe (Schedule 4827) for San Pedro, Los Angeles, naval station; until Nov. 15, one heavy-duty self-contained vertical boring mill, with threading attachment (Schedule 4743); until Nov. 18, two metal-cutting band saws (Schedule 4776), one pipe and nipple threading machine, all motor-driven (Schedule 4795) for Puget Sound yard.

Butler Packing Co., 5531 Airport Way, Seattle, food products, has asked bids on general contract for one-story packing plant, 61 x 150 ft., at Fourteenth Avenue South and East Marginal Way. Cost over \$50,000 with equipment. Sutton, Whitney & Dugan, W. R. Rust Building, are architects, and Putnam Engineering Co., Provident Building, consulting engineer, both Tacoma, Wash.

Quartermaster Depot, Federal Office Building, Seattle, asks bids until Dec. 1 for eight fuel oil storage tanks, 10,000-gal. each; 18 2500-gal. fuel oil residence storage tanks; 17 672-gal. fuel oil residence storage tanks, and one 420-gal. fuel oil delivery tank (Circular 827-17).

United States Engineer Office, Pittcock Block, Portland, asks bids until Nov. 15 for construction, fabrication and erection of one 10,000-bbl. diesel fuel oil steel tank at Empire, Coos County, Ore. (Circular 208).

◀ FOREIGN ▶

Otago Harbour Board, Otago, New Zealand, asks bids until Nov. 30 for one or two traveling cranes for wharf installation (Contract 823).

Crowther, Ltd., Leicester, England, manufacturer of textile machinery and parts, cables, etc., has arranged for manufacturing rights for England of aircraft models produced by Taylor-Young Airplane Co., Alliance, Ohio, and will provide facilities for immediate production, including parts manufacture and assembling.

British-American Oil Co., Ltd., Canadian Pacific Building, Toronto, Ont., has let general contract to Poole Construction Co., Ltd., Regina, Sask., for addition to plant at Regina. Cost over \$100,000 with equipment.

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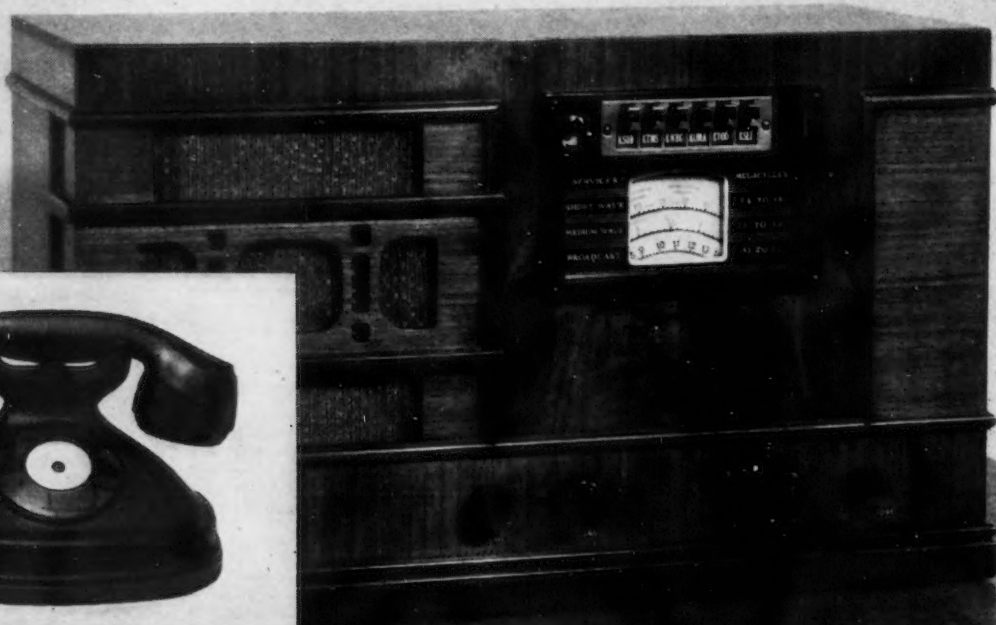
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